

MAR 26 1928

MOTOR AGE

A Chilton Class Journal Publication
Published Weekly March 22, 1928

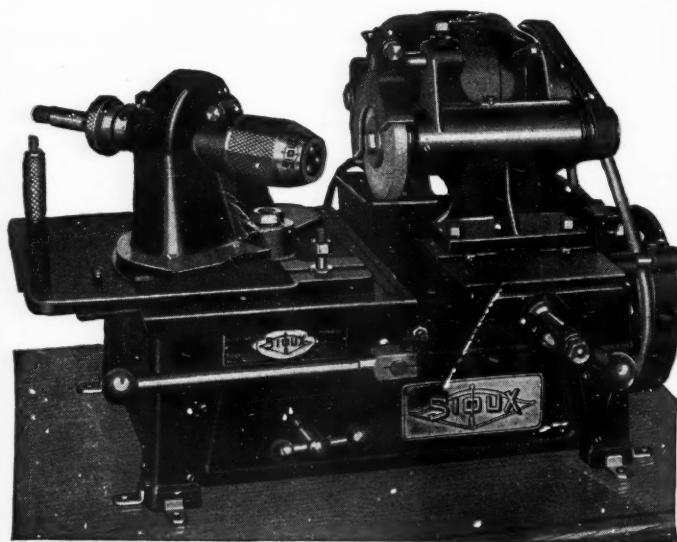
THE WINNING OF A THOUSAND RACES
OUGHT TO BE A PRIDEFUL ACHIEVEMENT.
BUT THE STABILITY AND MECHANICAL
NICETY WHICH MAKE THESE TRIUMPHS
POSSIBLE ARE THE SUPREME PROOFS OF
INTRINSIC WORTH—A WORTH THAT
NOW IS EVERYWHERE FURTHER PROVING
ITSELF IN GROWING PROFITS TO DEALERS.

THE SPLENDID STUTZ



VALVE FACE GRINDING MACHINE

with the
**Sioux Roller
Chuckling System**



No. 620 for valves of any angle with stems of 1-4" to 1-2" diameter. Net price \$145

NOW- a new Sioux
Valve Grinding
Machine that handles a wide range of
valve stem sizes, including the new Ford valve—
and grinds valves of any angle. The exclusive Sioux
Roller Chucking System assures the most *accurate*
work with the greatest *speed*; it is self-aligning, grips the
valve stem at the proper place [just above the worn surface]
and holds it rigidly centered.

If you want to meet present day competition, pocket a larger net
profit on flat rate charges and make extra money by grinding valves
for other shops—investigate the SIOUX.

Your Jobber Sells It ALBERTSON & CO.
Sioux City, Iowa, U.S.A.



TRANSMISSION
AND
DIFFERENTIAL

STASO

LUBRICATION
SERVICE

Paramount!

*STASO is a fluid transmission
and differential lubricant
in ONE Grade for
All Weather!*

When your patrons ask for a lubricant that won't thin out at summer heat or stiffen at zero, "something that will do away with grinding, clashing gears"—offer *Staso* . . . for super-service!

Staso is a fluid lubricant meeting car manufacturers' specifications . . . a transmission and differential product that will stand the gaff!

Keystone Oil & Manufacturing Division
Central Commercial Company
332 South Michigan Ave.
Chicago

See Your Local Independent Oil Jobber or Write Us Direct for Full Information

LYON

TO PUT the most parts, in the handiest places, on the least floor space has been the constant aim of Lyon Engineers in developing steel parts storage systems for automotive dealers.

If you will study the Lyon System for the car you service you will find that it will reduce your cost of doing business. It will give safe, orderly storage, it will cut waste of time, it will make stock keeping easier and help increase profits.

Steel Shelving... Lockers... Cabinets... Counters... Steelart Folding Tables and Chairs. General Steel Storage Equipment and Steel Furniture. The Lyon name and trade mark attest the strength, finish, usefulness and durability of Lyon Steel Products

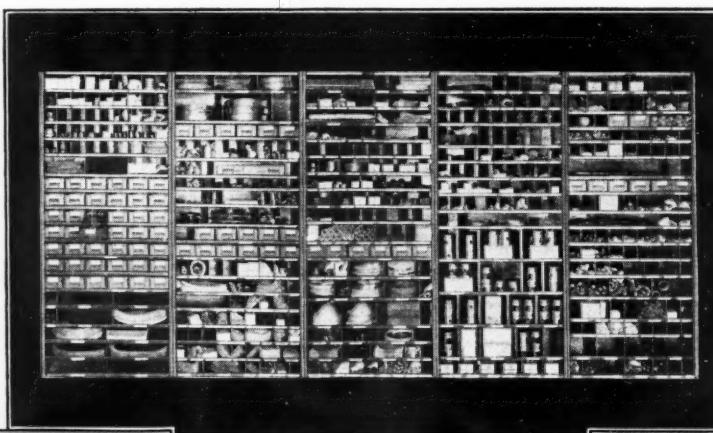
And finally there is the durability of Lyon Steel Storage Equipment to consider. It is economical because it does not wear out.

Your automotive jobber's salesmen can talk with you about the size system that will take your stock. We will send you a special bulletin also if you will write us the make and number of cars you service. Lyon Metallic Manufacturing Company, Aurora, Illinois.

CHEVROLET

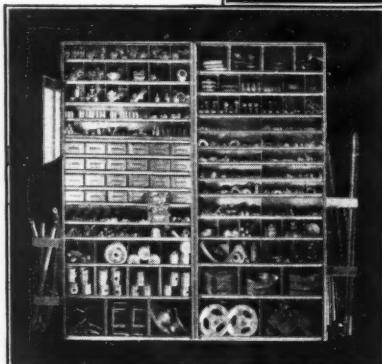
Cadillac— La Salle

The 2-unit system shown below will care for \$1000 to \$2500 worth of Cadillac and La Salle parts. Other systems will carry up to \$30,000 stocks



Ford Model A

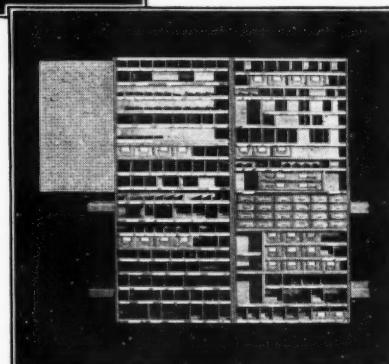
An \$800 stock of Model A parts can be stored most economically in the 2-unit system shown below. Other systems for \$1600 and \$2400 stocks. Use less floor space and cost less per bin than any other system



CADILLAC — LA SALLE

Chevrolet

The 5-unit Lyon Steel Storage System shown above is the money saving way to handle \$1,500 to \$4,000 worth of Chevrolet parts. Other capacities from \$750 to \$11,000 and up. End irons and gasket boards are real conveniences on any size system.



FORD — MODEL A

STEEL STORAGE EQUIPMENT



MOTOR AGE

Vol. LIII

Reg. U. S. Pat. Off.
Established 1899

No. 12

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 under Act of March 2, 1879.

CONSIDER THESE FACTS

MAKE MORE MONEY

1. You can make from \$200.00 to \$500.00 per month with the help of a Gladish Electric Auto Elevator.

SELL MORE OIL

2. You can sell Six Quarts of lubricating oil where you formerly sold one.

QUICK SERVICE

3. Car owners want their cars greased thoroughly, often and quickly. The Gladish Electric Auto Elevator allows you to do this.

BUILDS BUSINESS

4. Ask your customers to buy complete lubrication. Ask them to let you change their oil. You can serve them better, cleaner & faster with a Gladish Electric Auto Elevator.



GLADISH Electric Auto ELEVATOR

Most practical, efficient and economical lifting equipment for service stations and garages. Raises car five feet above the ground. Built on jack screw principle, the safest lifting method known. Allows complete lubrication and change of oil in 20 minutes. Greatest money-maker for hundreds of users. Write us today for complete details.

American Hoist Corporation
 2420 East 14th St.,
 Chattanooga, Tennessee



Swivel Joints ~ Flexible Shafts ~ Fibre Gears

Can Your Speedometer Repair Service be Improved?



The A-O-K interchangeable Swivel Joint for right- or left-hand position.



A-O-K Flexible Shafts made from oil tempered steel wire. Guaranteed accurate.

Do you keep customers waiting days while you get the speedometer parts you need?

When you finish the job do you wonder how soon it will be back for Free Service?

Do you have to refuse business on any of these 8 makes: Stewart, AC, Johns-Manville, Corbin-Brown, Warner, Van Sicklin, Jones and Standard?

Garage and service station managers using A-O-K Speedometer Parts and Service answer, "I DO NOT." For 24-hour service on quality parts for these 8 nationally known makes wire or write

Swivel Joint & Shaft Co.
 PLYMOUTH INDIANA

Thanks, Mr. Comings—we couldn't tell the Gardner story any better ourselves

AUTOMOBILE
TRADE JOURNAL
JANUARY 1928

A Ton of Pure Gold

By A. V. Comings

A TON of pure gold is worth \$602,000. Molded into a cube it measures about 14 inches on each edge. Put it on a truck and drive down Main Street and few would notice it. "Hunk of brass," they'd think.

A ton of loose hay, on the other hand, bulks 400 times greater than the ton of gold. Put the hay on a truck and drive down Main Street, and everyone would see it. And you might get \$22 for the hay.

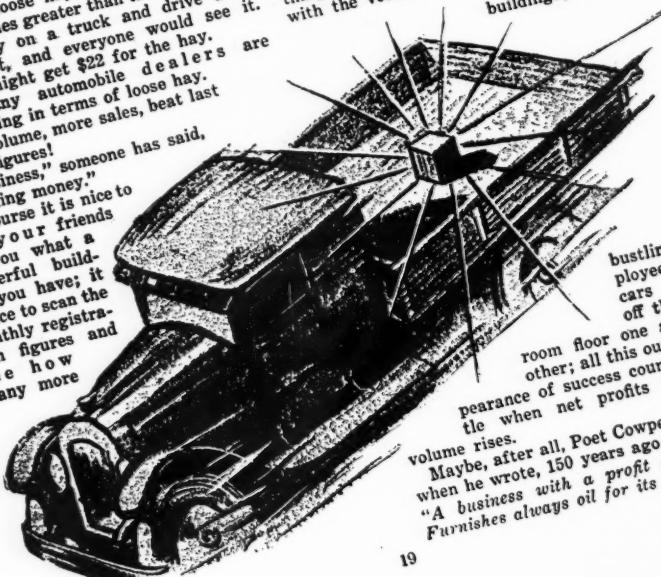
Too many automobile dealers are still thinking in terms of loose hay. Greater volume, more sales, beat last year's figures!

"Business," someone has said, "is making money." Of course it is nice to have your friends tell you what a wonderful building you have; it is nice to scan the monthly registration figures and see how many more

cars you have sold than your competitors, and the old chest swells proudly when the factory sales manager says: "Bill, you've done a great job this year."

But many a dealer realizes the emptiness of all this when, in the privacy of his own office he looks in vain for satisfactory net profit figures. Then he realizes as never before that large volume doesn't mean a thing unless there is a profit commensurate with the volume.

Huge, attractive buildings; hustling,



19

bustling employees, new cars rolling off the salesroom floor one after another; all this outward appearance of success counts for little when net profits shrink as volume rises.

Maybe, after all, Poet Cowper was right when he wrote, 150 years ago:

"A business with a profit at its heels,
Furnishes always oil for its own wheels."

What dealers need today is a Net Profit on Every Sale. That's been Gardner's policy from the very beginning. Write for full details.

The Gardner Motor Co., Inc., St. Louis, U.S.A.

SALES CLIMB

JANUARY
retail
deliveries
of Studebaker-built cars were the largest in history and
FEBRUARY
beat every previous February!

YOU can make more money—make more friends with customers—and build a stronger business by selling Studebaker-built cars. Write or wire today—the Studebaker-Erskine franchise may be available in your town or city.

New Franchise for towns and villages

For small communities we offer a new and unusual contract. Hardly any capital is necessary. No shop need be operated. No used cars need be handled. If you wish you need maintain only an Erskine demonstrator. This entitles you to sell all Studebaker-Erskine models, as well as a profitable line of commercial cars. Mail coupon—or wire direct to Dept. 51 for full information.

THE STUDEBAKER CORPORATION OF AMERICA
Dept. 51, SOUTH BEND, INDIANA

Please send me full information on the Studebaker-Erskine franchise.

Name.....

Street Address.....

City and State.....

My present business (if selling cars now, state make).....

STUDEBAKER

The Great Independent

are you familiar with the *latest* advantages of the NASH contract



T

HE Nash Motors Company has been conspicuous for its many generous and forward-looking policies in behalf of its dealer body.

Consistently, during the past several years, the Nash dealer contract has been so developed as to make it increasingly profitable.

If you have not been in contact with the Sales Department at the Nash factory recently, you may not be acquainted with the LATEST money-making features of the Nash franchise.

By all means, inform yourself of the newest steps Nash has taken to give its dealers *a still more advantageous position in the motor car industry.*

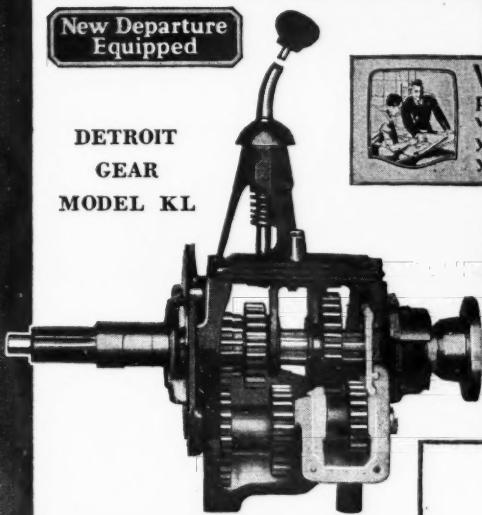
Write direct to the Sales Department, The Nash Motors Company, Kenosha, Wisconsin.

NASH

(777)

New Departure
Equipped

DETROIT
GEAR
MODEL KL



Whenever you have a bearing problem our expert engineers will be glad to discuss it with you personally. We will help you to do your thinking.

HERE'S A COMBINATION!—

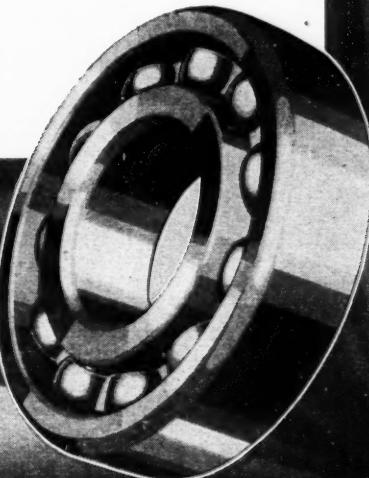
Stutz Black Hawk Racer
Detroit Gear Transmission
New Departure Ball Bearings

EA CH is crowding perfection hard—and each is a success because it knows how to pick its "parts."

New Departure, for instance, picks for performance the most uniformly enduring bearing metal known to man—electric furnace *high* carbon chrome alloy steel—and uses more of it than all other bearing manufacturers together.

THE NEW DEPARTURE MFG. COMPANY
BRISTOL, CONNECTICUT
Chicago San Francisco Detroit

New Departure Quality Ball Bearings



How I got HARD-BOILED about Duals

EVEN when I was a kid I was always the first cash customer for every medicine show that came to town. In other words, I was easy to convince.

But since I dropped the three hundred bucks I've grown more set in my ways. That little cold plunge 'woke me up to the fact that you can't be too broad-minded—and run a fleet of trucks at the same time—unless you're a good loser.

I'd been using Budd Duals for years with never a single tear of grief. So I'd never thought much about wheels, never had occasion to.

Then I bought a brand spanking new truck, and through force of habit, just took the wheels for granted. They were rather snooty-looking wheels, too.

But it wasn't long before that brand spanking new truck developed a ravenous appetite for tires. The wheels began to do a snake-dance and I couldn't break 'em of the habit. And believe me, folks, when you're paying the freight and tires are \$75



a throw, you can't laugh when they scuff out that way.

The boys kicked, too—said that changing one of those tires on the road was the toughest job they ever ran up against. And I was keeping books in two colors—red and redder.

No sir, you can't let yourself be smiled into buying *any* Dual wheel that comes along. You can't be carried away by charts and specifications and ballyhoo and paper talk. You've got to *know* your Duals.

I didn't used to be so hard-boiled, but I am *now*, believe me, and I paid three hundred bucks to get that way—

That's what it cost me for a set of Budd Duals to take the place of those rollers I fell for.

J.M. Wiser

MOTOR AGE

VOLUME LIII

Philadelphia, March 22, 1928

NUMBER 12

Cadillac Output Up 116 Per Cent

Sales Also Show Great Gain Over Same Period of Last Year

BIG '28 PROGRAM

DETROIT, March 22—During the first two months of the year the Cadillac Motor Car Co. enjoyed an increase of 116 per cent in production and sales and an increase of 100 per cent in shipments, compared with the corresponding period of last year. The company has scheduled a tentative program of 50,000 automobiles for the year.

Commenting on the situation, Lawrence P. Fisher, president and general manager, said: "Comparing the first two months of 1928 with the same months of 1927, Cadillac sales show an increase of 14.5 per cent. Combined with La Salle sales the increase is 116.8 per cent. In a similar comparison regarding production, Cadillac cars built show an increase of 68.4 per cent. Combined with La Salle production the increase is 118.8 per cent. Cadillac shipments for January and February show a 30.7 per cent increase over the same period last year. Combined with La Salle the increase is 96.7 per cent.

"During the first two months of 1927, the La Salle car had not yet been announced. Sales of Cadillac cars during that period were 2692 as against this year's Cadillac sales of 3083, and La Salle sales of 2754. Thus the Cadillac and La Salle sales this year each exceeded the Cadillac sales for the same period last year. Sales of the two cars are running practically equal."

Brandt With Autocar

ARDMORE, PA., March 21—A. J. Brandt, of Birmingham, Mich., has been retained to take entire charge of all factory operation of the Autocar plant. He will be the coordinating executive in charge of all manufacturing operations, including the layout, processing and assembling methods, the purchase of materials and equipment and machining methods.

Continental Motors Corp. Prize Contest is Won by Salesman

DETROIT, March 20—Robert S. Smith, 26-year-old salesman of this city, has been declared winner of the contest staged by the Continental Motors Corp. in which contestants were required to submit a list of vehicles equipped with Continental engines, together with a sales slogan of not more than five words.

Smith listed 82 manufacturers and 255 models. His slogan was "Built to Wear and Win." The prize was a Continental-engined sedan and Smith chose a Moon 8-80.

Dodge Brothers Sponsors Gigantic Radio Hook-Up

DETROIT, March 22—Dodge Brothers, Inc., will sponsor one of the biggest radio hook-ups yet accomplished when, on Thursday evening, March 29, movie stars of Hollywood go on the air nationally in the "Dodge Film Stars Radio Hour." The line-up will include Norma Talmadge, Charlie Chaplin, Douglas Fairbanks, D. W. Griffith, John Barrymore, Dolores Del Rio and Paul White-man and his band. More than two score radio stations will be used.

The "Dodge Film Stars Radio Hour" is to be on the air from 9 to 10 p. m., Eastern Standard Time.

Moon Sport Roadster

ST. LOUIS, March 20—The newest addition to the Moon eight-cylinder line is a sports roadster, which has just been placed in production at the factory here.

The new car has a rumble seat and comes equipped with wire wheels and luggage carrier. It is powered by the Moon Continental engine developing 72 hp.

The car has a 125-in. wheelbase and color combinations include Chinese red body, black fenders and running gear, and door panels of a lighter shade.

Many Exhibitors At Big Air Show

145 Will Have Displays at Event Which Opens in Detroit April 14

CAR MEN TO AID

DETROIT, March 21—With the opening of the All-American aircraft show to be held in Convention Hall, April 14 to 21, still several weeks away, nearly all available floor space has been reserved. While final exhibitors' lists have not yet been completed, reservations to date indicate that there will be a total of about 60 or 70 complete airplanes exhibited, in addition to exhibits of about 75 manufacturers of accessories, motors, instruments, etc. Not even the national air races have ever brought together a similar number of exhibits of modern developments in the airplane field.

The show itself will be modeled on the well known national automobile shows.

Heading the committee is William B. Mayo, chief engineer of Ford Motor Co.; Thomas S. Merrill, of the General Motors Corp.; L. M. Woolson, of the Packard Motor Car Co.; Harry R. Graham, of the Stinson Aircraft Corp. and formerly of General Motors Truck Co.; and William E. Metzger, who will be remembered from the days of the E.M.F., cooperating with Ray Cooper and Karl S. Betts, manager and assistant manager respectively, of the show.

Exhibitors of planes will include: The Curtiss Aeroplane & Motor Co.; Loening Aeronautical Engineering Corp.; Stinson Aircraft Corp.; Bellanca Aircraft Corp.; Pitcairn Aviation, Inc.; Alexander Aircraft Corp.; Fairchild Aviation Corp.; Hamilton Metal Plane

(Turn to page 17, please)

Finished in Gold

ST. LOUIS, March 20—Two hundred Chevrolet coupes were recently built at the Chevrolet plant here on a special order requiring that they be finished in gold Duco. The machines are for the De Laval Cream Separator Co. of Chicago.

Vance Tells What Car Buyer Wants

No One Feature of Paramount Interest, Car Executive Says

SOUTH BEND, IND., March 22—What single quality is most desired in a motor car? "None," according to H. S. Vance, vice-president of the Studebaker corporation.

"I do not believe the question can be answered any other way, from the standpoint of the average motorist," said Mr. Vance. "Good motor car design seeks essentially a combination of qualities, no one of which can properly be relegated to a position of secondary importance."

The question of what is most important in motor car design is particularly timely, Mr. Vance believes, because claims and counter claims made by various manufacturers in the past year have raised a question in the mind of the public as to just where the automobile industry is heading.

"Any modern car must serve its owner under many different conditions," he pointed out. "As a result, sound engineering should first make sure that a car will operate satisfactorily under all conditions, and continue to operate without frequent visits to the repair shop.

"After that come refinement in design that lead to all the various qualities covered by the question. There are speed, power, and acceleration, reliability, and long life, economy of oil and gasoline consumption, riding comfort, roadability, ease of handling, and many more detailed aspects of performance desired by every owner."

"But here is the danger that advanced engineering must constantly guard against: overemphasis of any one quality is likely to be achieved only at the sacrifice of something else."

Co-op Gas Stations

WASHINGTON, March 21—What is regarded as a new idea in cooperative selling is reported by the U. S. Bureau of Labor Statistics of the Department of Labor, explaining how certain cooperative bureaus in Illinois, Nebraska and Minnesota have profited by the cooperative operation of gasoline and oil stations.

At the present time, nineteen farmers' cooperative stations are being operated in Illinois, similar stations being operated in Nebraska and Minnesota. In the latter state, the stations are operated by the Minnesota Co-op.

Sloppy-Shop Kinks



No. 3. Gasoline Gauge

BY installing a spark plug in the side of the tank one can quickly tell just how much gasoline it contains. If upon causing the spark to jump the gasoline merely burns, it is an indication that the tank is practically full. If a violent explosion results, it is an indication that the gasoline level was low. Features of this device are great efficiency, and extremely low cost.

Oil Co., which has accumulated a quarter of a million dollars' worth of business in eight months, with practically no capital, and at the same time, according to the department, has saved its members a considerable sum in their gasoline and oil bills.

A profit of \$3,474 was shown by the company over the eight months' period.

Gresham of Chandler K. C. Branch on Visit to Dealers

KANSAS CITY, March 17—R. O. Gresham, manager of the Chandler branch here, has returned from a visit to dealers in the southwest territory. He found conditions in the territory very good and predicts a good spring and summer business for motor car dealers in the territory.

Manderville Joins G. M.

NEW YORK, March 20—L. O. Manderville, of General Motors Export Co., sailed recently for London. He will be regional inspector for Europe. Mr. Manderville, who has been with the Studebaker Motor Co. since 1911, recently joined General Motors.

Graham-Paige Has Record Single Day

Production Exceeds 300 Units With Greater Output Forecast

DETROIT, March 16—The Graham-Paige Motor Corp. attained a new high production mark last week, when for the first time a single day's output exceeded 300 units. The largest production for one day was 311 cars. While it is only two months since the introduction of the first passenger cars to bear the name of the three Graham Brothers, the demand has already caused the breaking of all previous employment records of the Paige company, which the Graham Brothers acquired last June.

There are now 3030 employed in the main plant in Detroit, which is 480 more than were ever before on the Paige payroll during its 18 years' history. In addition, the new Graham-Paige body plant at Wayne, near Detroit, employs 1086 men, making a total for the two plants of 4116. This total does not include the office employees of the two plants, to the number of nearly 400.

Even with only three of the five Graham-Paige chassis in production, the output is running far ahead of past performances. The largest single day's production in 1927 was 161 cars, as against 311 this year. The largest week last year was 865 cars; this year 1515 cars were turned out in the week ending March 3, an increase of approximately 100 per cent.

The production may be expected to increase as the incoming flow of material becomes more constant. In the near future with the addition of the six-cylinder 114-in. wheelbase model and eight-cylinder 135-in. wheelbase model, further increases will be necessary.

Siegfried Advanced

DETROIT, March 22—Directors of the Motor Wheel Corp., reelected at the annual stockholders meeting on Tuesday, voted to set aside 50,000 shares of stock for distribution to employees on a basis which will be determined later.

J. B. Siegfried was elected vice-president in charge of sales. He has been general sales manager and a director since the organization of the corporation. D. L. Porter was elected vice-president and treasurer succeeding B. S. Gier, resigned. Other officers were reelected.

What's Coming In Motordom

SHOWS

Automotive Equipment Ass'n, Coliseum, Chicago Oct. 22-27
 *Chicago Jan. 26-Feb. 2
 Corpus Christi, Texas April 4-7
 Goldsboro, N. C. April 9-13
 National Standard Parts Association, Cleveland Auditorium...Oct. 29-Nov. 3
 *New York Jan. 5-12
 Sioux Falls, S. D., Coliseum...March 28-31

*Tampa, Fla., Davis Island Coliseum, March 29-April 5

CONVENTIONS

Automotive Equipment Association, Grand Hotel, Mackinac Island, June 10-16
 Automotive Equipment Ass'n, Coliseum, Chicago Oct. 22-27

*Will have special shop equipment exhibit.

National Standard Parts Association, Hollenden Hotel, Cleveland, Oct. 29-Nov. 3

New Jersey Automotive Trade Ass'n, Elizabeth May 8
 Society of Automotive Engineers, Chateau Frontenac, Quebec, June 26-29
 Texas Automotive Dealer's Association, Gunter Hotel, San Antonio..April 16-17

RACES

Atlantic City, N. J. May 5
 Detroit June 3
 Indianapolis May 30

May 3—Sales and Service Reference Number—Motor Age
June 10—A. E. A. Summer Meeting Number, Motor World Wholesale
June 23—Engineering Issue—Automotive Industries

Doubts Tax Relief Present Session

WASHINGTON, March 20—Doubt as to the prospects of tax relief by the present congress was expressed this week by Chairman Reed Smoot of the senate finance committee. The tax reduction program as passed by the house would repeal the three per cent excise tax now levied on passenger cars.

Chairman Smoot announced that the house bill would not be taken up by the committee until March 25, which, he declared, would be the earliest date that the Government would have available a tabulation showing the results of the March 15 tax returns.

A preliminary survey conducted by an official agency, he said, shows that there will be a loss of approximately \$190,000,000 in receipts this year on corporation tax returns alone. The house bill provides principally for a slash in corporation taxes. The elimination of the automotive tax amounted to approximately \$60,000,000, being the largest single item.

Driscoll Made Sec-Treas. of Stanley W. Smith, Inc.

SAN FRANCISCO, March 21—W. J. Driscoll has been named secretary-treasurer of Stanley W. Smith, Inc., succeeding D. A. Brundage, who leaves for Los Angeles. Driscoll has been secretary-treasurer of the H. O. Harrison Co. here for some time.

Workers Honor Bassett

FLINT, March 19—As a memorial to the late Harry H. Bassett, who was president of the Buick Motor Co. when he died two years ago, workers in the Buick factories have raised a fund of

\$8,000 to furnish an entire floor of the new Hurley Hospital. The floor will be known as the Bassett Memorial Floor and a suitable bronze tablet in his memory installed.

Electric Auto-Lite Co. Shows Good Net Gain

TOLEDO, March 21—With a total net sales of \$15,762,093 for 1927 the Electric Auto-Lite Co., has shown a gross profit from operations of \$3,076,958, making the last year its best in the history of the company.

After crediting other income and making annual charges for depreciation, interest and taxes the net profit available for the stockholders was \$2,363,475 which is equal to \$9.45 a share as compared with \$7.11 a share earned the previous year.

Bennan Heads Combine

CHICAGO, March 19—The Jefferson Electric Mfg. Co. and the Chicago Fuse Mfg. Co. have been consolidated under the name, Chicago-Jefferson Fuse & Electric Co., with offices at Laflin and Fifteenth Sts., this city. The company will continue its policy of sales through established jobbers. Officers are J. A. Bennan, president; A. R. Johnson, vice-president; A. E. Tregenza, vice-president, and J. C. Daley, treasurer.

Dahl Named President

SPOKANE, WASH., March 21—The dealers division of the Washington Automotive Trade Association for eastern Washington, has elected Roy Dahl, president and general manager of Spokane Nash Motor Co., president for the current year. He succeeds Dee R. Riegel. DeWitt Wallace was elected vice-president, succeeding L. J. Burrows.

Newest Campaign Starts on Coast

LOS ANGELES, March 18—A "Know-Your-Product" educational campaign has been launched by the Automotive Parts Club of southern California, which comprises the leading parts wholesalers in this territory. At each meeting of the organization one leading product, such as axle shafts or gears, will be taken up for complete analysis in order that the membership may gain as much information about it as possible. The members in turn, will pass on the information they gain to the salesmen and counter clerks.

The association is working on a plan to check losses for obsolescence, and has in effect a credit policy that has been accomplishing substantial results. Whenever any account is 60 days past due with any member of the organization, every member is pledged to place it on the c.o.d. list.

K. C. Chandler Co. Branch Handles Wholesale Only

KANSAS CITY, March 17—Retail sales of the Chandler line of motor cars, heretofore handled by the factory branch, have been taken over by H. G. Rider and R. G. Bryant, operating under the firm name of Rider & Bryant.

The branch, of which R. O. Gresham is manager, will continue to handle the wholesale business.

Olds Increases Gift

LANSING, March 21—R. E. Olds, chairman of the board of the Reo Motor Car Company, has added \$30,000 to his original \$100,000 gift to the Kalamazoo College.

Gigantic Jobber Merger Planned

Report from West Coast Tells
of Ten-Million Dollar
Project

LOS ANGELES, March 18—The proposed gigantic merger of all A.E.A. jobbers operating in the Pacific Coast States into one great corporation with a total capital of possibly \$10,000,000, is reliably reported to be nearing a point of consummation. While none of the jobbers are willing to be quoted at this stage of the proceedings, it is known that all preliminary deals of the epoch-making consolidation have been completed and that negotiations have reached a stage where the possibility of the merger being concluded are "90 per cent sure." It can be readily appreciated that with from 12 to 18 different jobbing companies, with different corporate set-ups, and with varying appraisals of good-will, it has been little short of a herculean job to get things to where they now stand. The negotiations have been going on since last October. It is expected that a definite announcement that the tremendous deal has been concluded will be forthcoming within the next two or three months, possibly sooner, unless the unexpected happens.

Whether the proposed consolidation would take in from the start all A.E.A. jobbers on the Pacific Coast, as well as in Idaho and Nevada, or would have its inception by combining the businesses of all California jobbers, is not yet definitely known. However, from sources of unquestioned authority, it is learned that it is most likely the merger will at first embrace only the 12 A.E.A. jobbers in California, but with a definite agreement with the Pacific Northwest jobbers that they will come in before six months or a year have elapsed.

In the event the merger is consummated, the plan of operation is unofficially but reliably reported to be as

(Continued on page 21)

Lowrey Succeeds Paxson

SAN FRANCISCO, March 20—R. L. Lowrey has been made general manager of the Locomobile Co. of California, succeeding S. S. Paxson, resigned. Lowrey has been retail sales manager of the Locomobile company for the last year.

Paxson has taken over the Star and Durant sales franchise for Portland, Ore.

With Grahams



F. R. Valpey

WE told you a couple of issues ago of Mr. Valpey's appointment as general sales manager of



W. R. Heilman

Graham-Paige. Here's his picture and that of his recently appointed assistant, Mr. Heilman

Fred Perkins Brand

CLERMONT, FLA., March 20—Fred Perkins Brand, automobile pioneer, died here March 4, following an operation.

Mr. Brand was born Sept., 1876. As a young man he was active in the bicycle business, and then became associated with the Locomobile Co. in the early days. Following this connection, he was for a number of years with Kelly Truck. He then represented Pierce-Arrow in Philadelphia, and became distributor for Pierce-Arrow in the Cleveland territory.

Mr. Brand for many years was prominent in civic and social affairs. He was president of the Cleveland Automobile Mfrs. and Dealers Association, and a member of the Cleveland Chamber of Commerce.

Gil Andersen Will Drive Stutz Car

Race to Settle \$25,000 Bet to be Held April 16 at Indianapolis

INDIANAPOLIS, March 22—Gil Andersen has been chosen as one of the drivers to guide the destinies of a Stutz Black Hawk which on April 16 will enter into a 24-hour duel on the Indianapolis Speedway, with a Hispano-Suiza of Europe as its opponent and a \$25,000 bet at stake. Andersen recently established a new American stock car record of 106.52 miles per hour in a Stutz Black Hawk over a measured mile course at Daytona Beach, Florida.

From Europe it is reported that Robert Benoist, speed champion of the continent, will be one of the two pilots of the Hispano-Suiza. The other driver has not been finally announced, but it is rumored he will be Charles T. Weymann, designer of the Weymann automobile body.

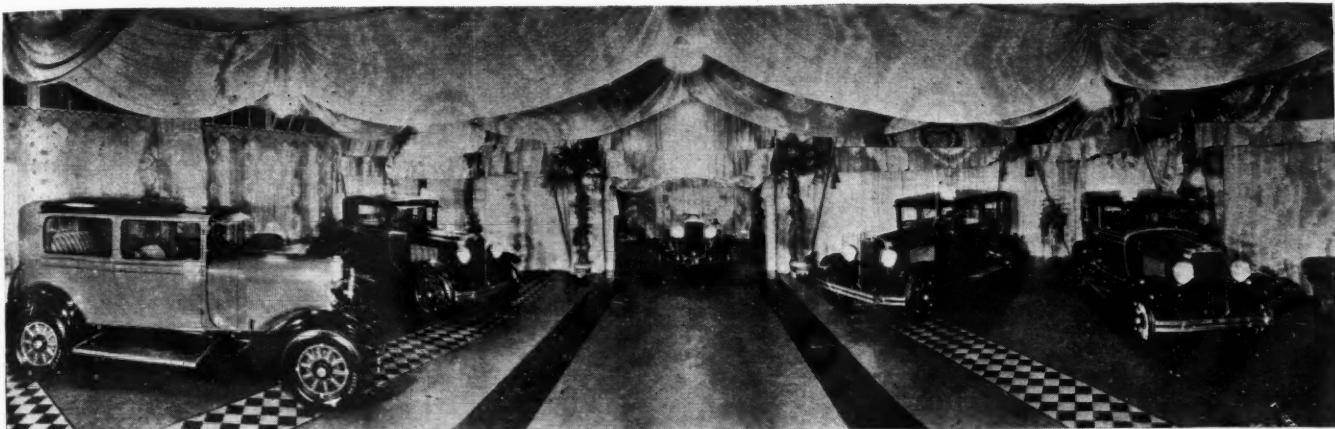
The forthcoming race is the outgrowth of an argument between Mr. Weymann and F. E. Moskovics, president of the Stutz Motor Car Co. of America, Inc., at the Paris automobile salon last fall, over the relative merits of American and European stock cars. One point led to another, until finally Mr. Moskovics and Mr. Weymann agreed upon a 24-hour match race at the Indianapolis Speedway. At the time the \$25,000 bet was made, \$5,000 forfeits were deposited in an Indianapolis bank in the name of Edward V. Rickenbacker, head of the speedway.

In addition to the great interest it will draw among lovers of the racing game, the 24-hour race will be considerable of a society event. The sale of all box seats in Stand "A," one of the choice vantage points, will be in charge of the Junior League of Indianapolis, and proceeds will be given to worthy charities. Neither of the sponsors of the race nor the Stutz or Hispano-Suiza companies will share in the profits.

Warner Gear Doubles Size

MUNCIE, IND., March 19—Demand for the new Warner Hi-Flex, a 4-speed transmission, introduced to the trade about a year ago, has forced the Warner Gear Co. to double in size the new unit building erected about a year and a half ago, it was announced by the company today.

New machinery is being rapidly installed and even during its installation the entire plant is being operated 24 hours a day, six days a week.



"Seattle's Most Beautiful Showroom"

THE showroom of the Oldsmobile Motor Co., pictured here, won the title of being the most beautifully decorated automobile headquarters in the city during the Seattle Automobile Show week. The showroom is located at Tenth Ave. and Pike St. A. R. Tyson is manager of the company

Sets Record for 15 Years' Service

TOLEDO, March 19—Well over a half million miles of service is the record of a Knight-engined car that has been in continual service as an ambulance at the Toronto General Hospital for the past 15 years. Placed in service in 1913 this car has traveled a total of more than 665,000 miles in its errands of mercy over the streets of Toronto and nearby points.

Despite this long period of service which is said to be an outstanding mark in the motor car world, this ambulance, powered by a Knight sleeve-valve engine is still doing active duty and appears to be good for years.

The Knight sleeve-valve engine employed in the Toronto hospital's ambulance is the same type of powerplant used in the Falcon-Knight six and other Knight-engined cars.

Since its initial introduction less than a year ago when the Falcon-Knight Six was presented at the lowest price ever reached by a Knight-engined six in America, this car has won such a hearty reception that Falcon officials express the highest optimism over sales prospects during the present year.

Campbell Gets Trophy

WASHINGTON, March 20—Captain Malcolm Campbell, British amateur racing enthusiast and speed pilot, who established the new world automobile speed record of 206 miles an hour, was presented with a trophy this week in the form of an enormous silver cup by Vice-President Dawes.

Following the presentation, Captain Campbell was introduced to the senate and later introduced to the house of representatives and then taken to the

White House where he was introduced to the president. He was tendered a dinner at night at the National Press Club under the auspices of the Washington Automotive Trade Association.

Hull Co. Appoints Jarman Vice-President-Director

BALTIMORE, MD., March 18—The Harter B. Hull Co., Baltimore Dodge distributor, has announced that Gilbert A. Jarman, for the last year passenger car sales manager, has been elected director and vice-president of the company. Mr. Jarman is the oldest man in point of service connected with Dodge operations in Baltimore.

General Manager



W. H. Rechtin

THIS young and handsome gentleman is the new general manager of Cincinnati-Oakland Motor Co. Congratulations, Mr. Rechtin.

Champions Both Used Champions

DAYTONA, FLA., March 19—The recent speed trials participated in both by stock cars and special built racing cars clearly demonstrated the efficiency of Champion Spark Plugs, according to officials of the Champion company. Both the Auburn and the Stutz established new stock car records and both were Champion equipped. The special racing car driven by Frank Lockhart, which attained the terrific speed of nearly 230 m.p.h. before Lockhart lost control and it somersaulted into the ocean, was also equipped with Champions.

The Auburn straight-eight, driven by Wade Morton, was first to break the world's stock car record, attaining a speed for 104.37 m.p.h. This record lasted but two days, however, when Gil Andersen in a Stutz set a new mark of 106.52 m.p.h.

The Champion Spark Plugs used in these cars were regular stock plugs the same as are sold in garages, service stations and accessory stores. They were in no way especially designed for racing service.

Prize for Dodge Slogan

DETROIT, March 19—Dodge Brothers, Inc., is conducting a contest to find the best slogan describing the performance of its Victory Six. The slogan, of ten words or less, must describe the performance of the car from impressions obtained in driving or riding in the car. Non-owners may arrange for a demonstration by their nearest dealer. The contest closes March 31 and prizes of \$1,000, \$500, two of \$250, 20 of \$100, 30 of \$50, 100 of \$25, and 200 of \$10 each, will be awarded.



Saved by a Wrecking Crane

QUICK action on the part of the Daytona Wrecking Co.—plus a Manley crane—made it possible to pull Frank Lockhart's tiny Black Hawk Special from the sea in record time. (See Motor Age for March 1, page 20)

G. M. C. Acceptance Has Good Net Gain

NEW YORK, March 17—Net profit of General Motors Acceptance Corp. for 1927 was \$8,578,475 against \$5,193,203 in 1926. This represented 1.02 per cent earned on the 1927 volume of \$842,819,877 as against .82 per cent earned on the 1926 volume of \$631,543,573. The per cent earned on capital funds increased in 1927 to 19.04 as against 18.98 in 1926.

Assets as of Dec. 31 showed cash of \$45,975,161; notes and bills receivable \$275,730,233; accounts receivable \$999,046, and investments \$3,257,702. At the end of 1926 cash totaled \$37,930,068; notes and bills receivable \$232,125,079; accounts receivable \$505,410, and investments \$81,000.

The company opened 15 new branches in 1927 bringing the number in operation to 62. New branches now being organized will bring the total to 75. Credit experience during the past year has been generally satisfactory, C. C. Cooper, president, said.

Michaux Visits America

NEW YORK, March 22—Cesare Michaux, vice-president of the Societe Francaise Duco and a director of Nobel Chemical Finishes, Ltd., of England, is now in this country to discuss business with officials of the E. I. duPont de Nemours & Co. and to spend some time at the company's plant at Parlin, N. J.

The French company now has a plant making Duco at Stains, near Paris, and the English company is also operating.

A third company named Duco Societa Italiana has been formed and is constructing a plant near Turin, Italy, which will be in production shortly.

Mr. Michaux will remain in the United States for about a month.

Pfeiffer Heads Miller Co.

AKRON, OHIO, March 18—At the annual meeting of the stockholders of the Miller Rubber Co. held in the company's offices at Akron, Ohio, March 8, President Jacob Pfeiffer formally presented the company's annual financial statement showing the company to be in sound financial condition. Current assets are in excess of three times current liabilities. The directors elected the following officers: President, Jacob Pfeiffer; vice-president, C. T. Grant; secretary and treasurer, Wm. F. Pfeiffer; assistant secretary and assistant treasurer and comptroller, R. R. Jennings; assistant secretary and assistant treasurer, W. H. Hackett.

Goodwin Heads N.E. Elcar

BOSTON, March 19—Frank A. Goodwin, formerly motor vehicle registrar of Massachusetts, was elected president of the Elcar Motor Co. of New England Thursday and took over his new duties yesterday. This company has the New England distribution for the Elcar. Associated with him are William A. Robb and Carl Goodwin, a son.

At the show Saturday night Mr. Goodwin was surrounded all evening by many men and women, a large number of whom promised him their support if he ran for governor next fall.

Ford Wins Brake Suit in Germany

Court Decision Finds System Conforms to Laws of Country

DETROIT, March 16—Word has been received here that the Ford Motor Co. of Berlin has won a court decision against the German Federation of Auto Industrialists, who have been questioning whether the new Ford automobile complies with German law regarding brakes.

A temporary injunction which was granted Feb. 25 against the Ford Motor Co. from advertising or publicly intimating that the new Ford car conforms with German requirements regarding brakes or that the car had already been passed by the testing authorities for free circulation in Berlin, has been rescinded by a German court to which an appeal was taken.

It has been the contention of German automobile dealers that the new Ford system of working hand and foot brakes with the same mechanism was in violation of German safety regulations prescribing a distinct mechanism for each brake. The Ford manager in Berlin is reported to have said last month that 25 cents worth of material and 10 minutes of time were all that was necessary to make the brakes conform with German law and that when the first car arrived Feb. 1 it was found to conform with the requirements of the law, an official statement of this being obtained in writing.

Hanch Addresses Trade Meeting in Belleville, Ill.

BELLEVILLE, ILL., March 19—A sectional meeting of the Illinois Automotive Trade Association was held at the Elks Club here yesterday.

Speakers at the morning and afternoon sessions included C. C. Hanch, an authority on automobile financing; W. E. Johnston of Peoria; F. E. Erstman of the Chicago Automobile Trade Association; J. F. Connally of Springfield; and Secretary C. W. Coons of the Illinois Association. "Bob" Lee, manager of the St. Louis Automobile Dealers Association, presided at a banquet in the evening.

John Edgar Poole

MOLINE, ILL., March 20—John Edgar Poole, aged 88 years, until his retirement in 1911 bookkeeper and auditor for Deere & Co. branches, died in his home after a four months' illness.

New Los Angeles Garage Finished

1000 Car Structure Handles Average of 300 Cars An Hour

LOS ANGELES, March 20—With the formal opening of Hills Brothers garage, a 13-story structure in the very heart of the downtown business district, Los Angeles now claims the largest garage in the West and one of the most modernly equipped in the country. The new garage houses 1000 cars.

As the building is constructed on a lot 78 x 155 feet, a difficult problem was faced in architectural design and construction. The question of getting a large number of cars in and out in the quickest time possible from any one of the 13 stories was solved by the installation of three large high speed elevators which travel at the rate of 850 feet per minute. Each elevator holds three automobiles at once and each can safely handle 300 cars per hour, or an average of five cars per minute.

A heretofore unused device has been incorporated on the elevators to conserve time and expedite the handling and distribution of cars. Each elevator is equipped with a power turntable which enables each automobile to be turned to head into the stalls without maneuvering, and cars can be loaded and unloaded on three sides of the elevators. Power for the elevators is supplied from two independent sources, so if one power fails the second source is automatically switched on.

Another innovation is the series of man lifts, which consists of endless belts running from the basement to the top floor at the rate of 100 feet per minute, carrying small platforms on which the attendants can step and ascend or descend.

An enormous ventilating system changes the air in the garage every five minutes, eliminating all exhaust fumes. Conveniences at hand for patrons include a modern rest room for ladies, luxuriously furnished; lounging room for men, and many other features.

Car Dealer Pushes Planes

NEW YORK, March 17—Farrell & Blake, Willys-Overland dealer, has secured the new agency for the Alexander Eaglerock airplane and is planning to handle also the Chamberlin plane as soon as that gets into production.

The sales campaign plans involve newspaper advertising, dodger distribution from the air, direct mail circu-

Jest—a Bit Cynical

By Sherman Swift

STETSON'S Stupendous Spectacular Street Show, with its mangy lion, crooked money wheels, shills and come-ons had departed. The dirty old tents had been folded and placed in the "canvas cars," poles had been unjointed and stored on running boards; the last stake had been pulled. Or not the last stake. That is an error. Every stake except the last one had been pulled. That one, planted directly in a path that had long served as a short-cut, had been overlooked. For weeks it continued to stand, a heavy oaken bar, its frayed-out top bound with a rusty band. After they had stumbled over it once or twice—in the twilight when returning from work or the pitchy darkness when coming home from the movies—the users of the short-cut had usually steered clear of it; there is nothing like a scraped shin to jog a vagrant memory. Which, if I may interpolate a thought, is a boost for truculence; the heel that recklessly crushes the shrinking violet is not so thoughtless where the spiny cactus is concerned.

IN less than a month countless feet had worn a path around the stake on either side, so deep that it seemed to stand on a mound. A few brave souls, whose cerebrations were not entirely banal, had entertained thoughts of removing the stake, but a glance at its apparent ruggedness had deterred them from the effort.

ONE day two small bare-footed boys, with a black and white dog stopped near the stake to investigate a luscious lump of half melted tar that the street repair gang had left near by. They couldn't resist the temptation to play with it. Sam, the dog, wanted to play too. He wasn't far removed from puppyhood and his reactions to the sight of the tar were similar to those of his youthful companions. But the boys were afraid that he'd soil his coat.

"You know how mad ma was—time when he rolled in the mud," admonished the older lad. "We won't be long anyway." So they forced the loop of his leash over the top of the stake and proceeded to play.

Sam didn't care to be left alone. He wanted to play too. First he whined, politely asking to be released. That did no good. Then he pleaded, in a succession of short puppy barks. Still he was ignored.

THIS dog had not lived long enough to think traditionally. He didn't know that the stake was irremovable. He probably had no ideas at all regarding it. He merely knew it kept him from his youthful companions. And that was enough. Suddenly he set his haunches and sprang forward, digging his hind feet into the soft soil. A cr-r-acking noise—and he was free. The stake, rotten to the core, had broken off short with the ground.

It is that way with life—and business.

larization and one or two rather novel features. All tire covers on the Whippet and Willys-Knight cars sold by this company carry the legend, "Learn to Fly an Eaglerock," and, in place of the usual car emblem, a pictured airplane.

The company also has a small single passenger car, powered with a two-cylinder motorcycle engine, and running on small airplane tires, with which it plans to travel around the city and in neighboring air fields carrying above the driver a placard advertising the Eaglerock plane.

Gets Own Design Bumpers

SPOKANE, WASH., March 19—The Transport Motor Co. has contracted with the United States Bumper Co. of Los Angeles for an exclusive design of bumpers for Willys-Knight and Whippet cars. "Our bumper commitments for our stores in Seattle, Spokane, and Yakima were sufficiently heavy to obtain an exclusive design," Luther Johnson, assistant manager who negotiated the contract, said. Three Knight or Whippet emblems are to be woven into the clamps for the brackets with striking effect."

More Automobiles Than Telephones

W. C. Durant's Forecast of 20 Years Ago is Amply Vindicated

ELIZABETH, N. J., March 21—"The fact that there are more automobiles in America than telephones graphically illustrates the importance of the industry," says T. S. Johnston, assistant to W. C. Durant of Durant Motors, Inc. This and other amazing things concerning the industry hardly 30 years old is found in the book "The Automobile Industry: Its Economic and Commercial Development" by R. C. Epstein. Here are a few of the facts he sets forth:

"In 1908 W. C. Durant, then president of Buick, predicted that the time would come when a million automobiles a year would be made. He was laughed at even by his brother manufacturers. But eight years later, 1916 more than a million cars were produced; and in every year since 1916 the production of motor vehicles has exceeded that figure.

"In 1920, more than two million vehicles were made in the United States; in 1923, well over three million; in 1925 and 1926, slightly over four million a year. Twenty-two million motor vehicles are registered in this country. In sheer rapidity and magnitude, the growth of automotive transportation in the United States constitutes one of the most amazing developments in all economic and commercial history."

Allbestos Brake Manual

PHILADELPHIA, March 22—The Allbestos Corp. of Philadelphia has just announced the completion of the Allbestos brake manual. The flat rates, brake adjustments, brake diagrams and instructions, make the manual helpful to service stations.

Prominent Battery Manufacturer Dies



C. H. Smith

PRESIDENT and general manager of the Westinghouse Union Battery Co., who recently died as the result of a fall, at the Pittsburgh Athletic Club. Mr. Smith had been prominently identified in an executive capacity with the Westinghouse interests for more than 25 years.

No Changes in Peerless Policy

German Makes Statement Relative to Control of Company

CLEVELAND, March 17—Regarding the report of a change of control of the Peerless Motor Car Corp., Leon R. German, vice-president and general manager, has issued the following statement, which was sent to all members of the Peerless distributing organization:

"Parties who recently acquired stock in Peerless are men of ability and are friendly to this management. Their association with us will add materially to the company's strength. Continuation of present policies and executives is assured. The company was never so strongly entrenched as now and its continuous prosperity is assured."

This message followed statements from R. W. Judson, president of the Continental Motors Corp., and A. A. Wallace, investment banker of Detroit.

Mr. Judson stated that Continental Motors Corp. is not a buyer of Peerless stock, that a merger of Continental, Peerless and Jordan is not contemplated and that W. C. Durant is not involved in the deal.

Mr. Wallace announced that there is no ground for the rumor of a disagreement among Peerless stockholders but that, on the contrary, "there is perfect accord and all are agreed as to just what should be done for the company's good."

Lowe Succeeds Williams

SPOKANE, WASH., March 19—Harry Lowe, formerly at Denver for Chevrolet Motor Co., has been made territory representative for that company in the Spokane region. He succeeds Ben Williams.

++-+ Happiness Boys Are Made—Not Born -+-+

THREE'S one way to keep salesmen, and that's by keeping them happy. If you want to know how salesmen can be made happy to the benefit of your business, put your peepers on "Keeping Salesmen Happy Keeps Them," in the March 29 issue of MOTOR AGE.

+ + + +

"A Prospect Tip-Off From a Former Order Clerk" is one for the boys in the back room and the boys in the front room. It's an article that proves the value of departmental cooperation.

+ + + +

"Of What Account Are Your Accounts?" is an article for the automotive executive, and for the ambitious men in the trade who have as their goal an office with mahogany fittings, Persian carpet and a sterling silver decanter.

+ + + +

In addition to other features, there will appear descriptions of two new lines shortly to be announced by prominent manufacturers.

Points Out Trend of Body Designs

Patterson of Elcar Tells of
Dominating Tendencies
of Present

ELKHART, IND., March 22—W. H. Patterson, vice-president of the Elcar Motor Co., in a recent lecture on automobile body design emphasized the fact that there were two dominating tendencies today. One is to swing the car low to the ground—or at least to appear to do so. The other is to give well-rounded, long lines to the body.

"The tendency toward low cars," said Mr. Patterson, "is being aided and encouraged by most automotive engineers. It is always preferable to have the center of gravity of a car as close to the ground as possible. This has recently become the ideal esthetically as well as from an engineering standpoint. Some makes of cars are actually several inches lower than ever before. Others, by carefully planned body lines, are made to appear so. In some cars, still as high as before, the center of gravity has been lowered by altered construction within the car."

The trend toward refinement and an avoidance of sharp angles is especially pronounced in the better grades of cars. Hoods are longer and deeper. Front fenders have a gentle sweep in harmony with the streamlines of the whole body. A more finished appearance is given to gasoline tank, racks, etc., by adapting them to the general flowing lines."

Durant Increases Output

NEW YORK, March 17—Orders for the new Durant and Star cars are so far exceeding anticipations that production has had to be stepped up to a point which the company did not believe would be necessary before the first of April, according to T. S. Johnston, assistant to W. C. Durant.



Profits Possibilities of Turnover

SUPPOSE I offer you two articles, one that will make a profit of 10 per cent and the other 15 per cent, which would you take? The 15 per cent one? It seems reasonable; but you would probably have more money at the end of the year with the 10 per cent article. Anything that sells at a big profit will usually be hard to get rid of; you'll spend a lot of time and effort selling it, and while it is in stock you'll be losing on interest and overhead. The low-profit article is generally a fast mover, and sells with but little effort.

Figure it this way: if you are making \$3,000 on a stock investment of say \$10,000, in high-profit, slow-moving goods, you will make \$6,000 with low-profit goods that move twice as fast. Two 10 per cent profits earn more than one 15 per cent profit. The sure way to make money in the retail business is to concentrate on quick-moving goods that sell easily to customers who come back for more.

There are concerns making money on 2 per cent profits while competitors lose on 10 per cent. Think it over.

From the Sunrise Trail, House Organ of the Walters Rubber Co., Mineola, N. Y.

He believes that this condition is characteristic of the automotive industry and that through this condition employment, not only in the automotive industry itself, but in other industries which are directly affected by automobile production, will be increased to such an extent as to assure national prosperity for 1928.

W. Pearce Rayner

WASHINGTON, March 19—W. Pearce Rayner, 45 years old, manager of the White Motor Company of this city, died on March 1 at Sibley Hospital, following a short illness.

Mr. Rayner was commander of the Motor Corps, which operated under the Home Defense League in Washington during the World War and has been active for many years as sales representative of various automobile manufacturers.

He is survived by his widow, Mrs. Nellie T. Rayner; three children, Helen, Hester and Pearce Tyler Rayner, and two brothers, E. T. Rayner of this city and A. E. Rayner of Baltimore.

Earl Cooper

EARL is now a familiar figure in the experimental laboratories of the Marmon Motor Car Co. Here he is as he looked the other day, after two decades of swinging the banked tracks

Many Exhibitors at Big Air Show

(Continued from page 9)

Co.; Fokker Aircraft Corp.; Advance Aircraft Corp.; Ford Motor Co.; Ryan Aircraft Corp.; Swallow Aircraft Co.; Halpin Airplane Co.; Simplex Co.; Lenert All-Metal Airplane Co.; General Aero Corp.; International Aircraft Corp.; Overcashier Aircraft Manufacturing Co.; Gillis Aircraft Corp.; Arr-O-Wing Airplane Co.; Mohawk Company; Central States Aero Corp.; Ireland Aircraft Co.; Chance Vought Corp.; Travel Air Manufacturing Co.; Chicago Aviation Co.; Wallace Aircraft Co.; American Eagle Airplane Co., and the Aero Craft Manufacturing Co.

Some of the names in the above imposing list are entirely new to the aircraft industry. Similar instances will be found in the accessory division, where, for instance, Pitcairn Aviation, Inc., is exhibiting for the first time its air-cooled radial engines which have been under development for several years. Other exhibitors of motors already scheduled, include the Pratt-Whitney Aircraft Co.; Wright Aeronautical Corp., and the Packard Motor Car Co.

Some of the other accessory and parts manufacturers are already well known in the automotive industry; among these might be mentioned S.K.F. Industries, Inc., Bohn Aluminum & Brass Co., Eclipse Machine Co., Robert Bosch Magneto Co., Inc., Splitdorf Electric Co., Bausch Machine & Tool Co., the B. F. Goodrich Rubber Co., AC Spark Plug Co., Norma-Hoffmann Bearings Corp., Berry Brothers, and the Scintilla Magneto Corp., Inc.

G. M. C. Monthly Sales 132,029

February of This Year Gains
29.4 Per Cent Over
Last

DETROIT, March 21—A total of 132,029 cars were sold at retail to consumers by General Motors dealers during February. This compares with 102,025 for February, 1927, a gain of 30,004 cars or 29.4 per cent. Gains by practically all car divisions have contributed to this result, according to Alfred P. Sloan, president of General Motors Corp. In February sales by General Motors divisions to General Motors dealers totaled 169,232 cars. This compares with 124,426 for the corresponding month a year ago; a gain of 44,806 units, or 36.0 per cent.

The following tabulation shows monthly sales of General Motors cars by dealers:

Dealers Sales to Users		
	1928	1927
Jan.	107,278	81,010
Feb.	132,029	102,025
Mar.	146,275	106,051

These figures include passenger cars and trucks sold in the United States, Dominion of Canada, and overseas by the Chevrolet, Pontiac, Oldsmobile, Oakland, Buick, La Salle and Cadillac manufacturing divisions of General Motors.

Chevrolet Pays Money Into Railroad Coffers

DETROIT, March 19—Some idea of the tremendous business the automotive industry gives the railroads is indicated in figures released today by the Chevrolet Motor Co. showing the inbound and outbound shipments to the 14 domestic Chevrolet plants in 1927 aggregated \$34,805,556.86. According to C. R. Scharff, general traffic director of the Chevrolet Motor Co., the sum covers the movement of 289,575 carloads of freight totaling 5,950,263,608 lbs. as well as 208,152,247 of less than carload freight.

Indian Speeds Up Output

SPRINGFIELD, MASS., March 20—Indian Motocycle Co. is running all its departments full time and most of them until 9 o'clock at night. The factory force has been enlarged by 20 per cent within the last two weeks. Activity has been spurred chiefly by the unusual demand for the Indian Scout.

Next to the Indian Scout, the strongest factor in this increase of produc-

Former U. S. Standards Bureau Men Now With Studebaker Corp.

WHILE the U. S. Bureau of Standards has not moved its offices to South Bend, Ind., there is a distinct "Washington accuracy" atmosphere about the extensive engineering offices of The Studebaker Corporation. A recent informal inquiry showed that of 26 key engineers in Studebaker service, no less than eight are former Bureau of Standards men.

Chief among these former bureau men is William S. James, who was associated with the governmental agency for 13 years and from 1911 to 1924 was in charge of the automotive powerplant section of the bureau. Mr. James is now chief of the Studebaker research engineering department and has direct charge of research laboratories and Studebaker's million dollar proving ground.

The other engineers of Studebaker's staff who were in Bureau of Standards service are: E. C. Newcomb, technical adviser to President A. R. Erskine, formerly technical adviser to the bureau; J. A. C. Warner, assistant research engineer, formerly chief of the aeronautical instrument section of the bureau; Stanwood W. Sparrow, research engineer, formerly in the automotive powerplant section; Robert F. Kohr, laboratory engineer, formerly associate mechanical engineer of the bureau; H. S. White, test supervisor, formerly assistant mechanical engineer of the bureau; Maurice A. Thorne, superintendent of proving ground, formerly assistant mechanical engineer in the bureau, and Clyde R. Paton, laboratory engineer, formerly associate engineer of the bureau.

The total time in engineering work of these men amounts to 119 years.

tion is the Indian Inertia Shock Absorber. Intensive sales drives for this accessory were recently instituted in Massachusetts, Connecticut and Ohio. In Cleveland 324 dealers were appointed in 10 days, and in New Haven, 120 dealers. This product is sold directly to retailers. F. H. Dickison, formerly of the Tidewater Oil Co., is directing the sales campaign for this line.

Boyd General Sales Head United Specialties Mfg. Co.

CHICAGO, March 19—Carl D. Boyd has been appointed general sales manager of the Metal Specialties Mfg. Co., manufacturer of electrical and automotive equipment items. Mr. Boyd has been connected with sales in the electrical, automotive and radio fields for nearly 25 years and is widely known.

F. F. Grinnelsman

DETROIT, March 20—Frank F. Grinnelsman, owner of Perfection Foundry & Machine Company of Pontiac, died this week. Mr. Grinnelsman was formerly manager of the Hess Spring Works at Pontiac, going from there to Cleveland as manager of the Perfection Spring Works. He later moved to Detroit as manager of the American Auto Parts Co.

One Day's Orders Marmon Record

INDIANAPOLIS, March 20—Monday of this week was the largest single day in the history of Marmon Motor Car Co., a total of 800 orders being received from the distributive organization of the company for the new Marmons.

This new record for a single day follows closely on the heels of the announcement that the month of February was the largest month in the company's history. Reports from all sections of the country indicate that retail sales are going forward at a rapid rate.

31,000 Unfilled Orders

TOLEDO, OHIO, March 19—with 31,000 unfilled orders on the books, the Willys-Overland Co. here has swung into a production schedule calling for 1250 cars a day for March. February production totaled 24,017 cars and was a 44 per cent increase over last year and the largest February business on record. In the first two months of the year the company has shipped 39,123 cars, which was 49 per cent more than for the same period last year. John N. Willys, who has been in Honolulu, is expected back in a few days.

Predicts World-Girdling Airships

Capt. Rickenbacker Forecasts Many Interesting Developments

LOS ANGELES, March 19—Cross-continental highways, 400 ft. wide, on which automobiles will travel from 75 to 85 miles an hour, and the reduction of the airplane-traveling time between New York and Los Angeles from 30 to 20 hours, were among the predictions made by Capt. E. V. Rickenbacker at a luncheon given at the Biltmore Hotel for Cadillac and La Salle dealers of the state, and which was attended by a representative group of Los Angeles business men.

The recently appointed assistant general sales manager of the Cadillac Motor Car Co. predicted that by 1950 there will be 50,000,000 automobiles in the United States. He said this country has not begun to reach the saturation point in the purchase of automobiles.

Speaking of the fact that American tourists, most of whom traveled in automobiles, spent \$50,000,000 in Canada last year, Capt. Rickenbacker said that in the years to come Mexico, Central America and even South America will be linked with the United States by super highways.

Capt. Rickenbacker also forecast the time when dirigibles capable of cruising around the world and equipped to carry a squadron of airplanes, with landing facilities for baby dirigibles will be constructed. He pictures this huge ship as a Goliath of the air that would cruise month in and out without landing, carrying passengers and freight delivered to it and taken from it by airplanes and smaller dirigibles. He declared his predictions are not fantastic, because it has already been demonstrated that these things can be done, and said it remains only for engineering skill to carry them out.

Lawrence P. Fisher, president of the Cadillac Motor Car Co.; Fred Fisher, vice-president of General Motors Corp.; Lynn McNaughton, vice-president of the Cadillac company, who came to Los Angeles to attend the automobile show here, told of the progress made in the past year in the sale and development of Cadillac and La Salle cars.

Schmidt Goes Abroad

NEW YORK, March 17—Walton Schmidt, field representative for the National Automobile Chamber of Commerce, will sail from Seattle today on his trip to English speaking countries

in the environs of the Pacific Ocean. Mr. Schmidt will speak before touring clubs, government gatherings and dealer associations in Japan, Darien, Mukden, China and the Philippine Islands. Later in the year he will visit Singapore, Java, Australia, New Zealand and Hawaii.

Mr. Schmidt will also hold special meetings with dealers, salesmen and mechanics in each of the cities which he visits.

Rowe and Fleming Are Advanced by Velie Co.

PITTSBURGH, March 19—A. S. Rowe has been appointed by Velie Motors Corp. as representative in this district, and W. P. Fleming has been named representative in the Spokane district. Both have been connected with Velie previously.

Eaton Heads Seattle Group

SEATTLE, March 21—W. L. Eaton, president of the W. L. Eaton Co., Dodge dealer here, was recently reelected president of the Seattle Automobile Dealers' Association. A. S. Eldridge, president of the Eldridge-Buick Co., was named vice-president; P. E. Sands, president of the Sands Motors Co., Studebaker dealer, treasurer; Floris Nagelvoort, president of the Nagelvoort-Stearns Cadillac Co., secretary.

Chevrolets Start Trail-Blazing Test

Car and Truck Off on Desert-Jungle Run of 10,000 Miles

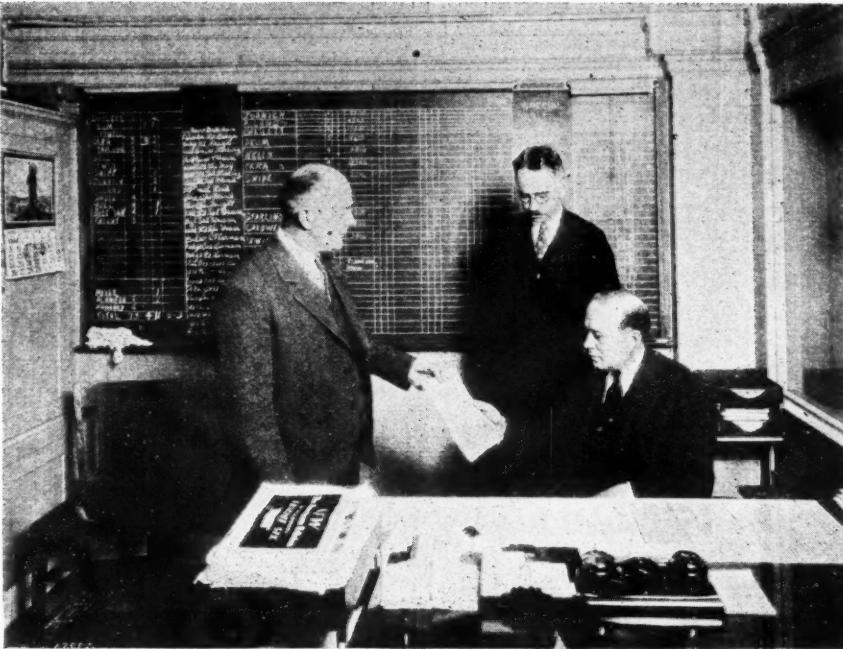
NEW YORK, March 17—A 10,000-mile trail-blazing endurance run from Cape Town, the Southernmost point of Africa, over a desert-wilderness trail to Cairo, thence through the Near East and Europe to London, ending up at Stockholm, was begun March 7 by a party of four adventurers in a stock model Chevrolet sedan car, followed by a Chevrolet truck, under the sponsorship of General Motors (South African), Ltd. The equipment was built in the General Motors plant at Port Elizabeth, South Africa.

Interest in the run is world-wide. The expedition was officially started by radio from New York City, by J. D. Mooney, president of the General Motors Export Co., who sent the following message:

(Continued on next page)

Smith With G.M. Export

NEW YORK, March 16—W. F. Smith, of General Motors Export Co., is sailing today for Montevideo. Mr. Smith will be regional sales manager for South America.



Orders Trainload of Studebakers

ARTHUR R. LINDBURG, Studebaker-Erskine distributor for Fresno, California, recently ordered a trainload of cars through the San Francisco branch of the corporation. J. M. Cleary, sales manager of Studebaker, was present when the order was given, being in San Francisco on business. Left to right: Mr. Lindburg, Mr. Cleary, George D. Keller, San Francisco branch manager. (The scholarly looking chap is Jim—not John)

Air Mail Adds a "Courier Service"

New Plan for Expediting Mail is Given Tryout at Springfield

SPRINGFIELD, MASS., March 16—A motor cycle courier service in conjunction with the air mail, said to be the first application of this idea in the world, was instituted in this district March 14. Permission to try out this service had been granted by the post-office department on estimated figures for operating costs. Whether the service will be permanent or not depends on the results of this experimental service. Operations are under the direction of the Indian Motorcycle Co., which has provided three machines and drivers for the purpose, by arrangement with the government and the Colonial Air Transport Co., which has the mail contract on the Boston-New York route.

A motorcycle now leaves the Holyoke postoffice at 4.15 o'clock in the afternoon, proceeds to Northampton, thence to Westfield and turns eastward to Springfield, going southward to Hartford, making the entire journey in two hours and a half, including stops. The distance is about 100 miles.

This service will enable the air mail for New York to be held open several hours later than previously in the cities mentioned, and is expected to increase the volume of this mail in a decided degree. The inauguration of the service was celebrated by a dinner attended by the postmaster, chamber of commerce officials and others.

Hammond Heads Sales of Marmon Distributor

OAKLAND, CAL., March 15—Hunter & Peacock, Inc., has been named Marmon distributor for the mainland side of San Francisco Bay, with headquarters in this city. Ben Hammond has been appointed sales manager.

Adds Seven to Line

HARTFORD, WIS., March 17—The Kissel White Eagle chassis, which was shown at the New York and Chicago shows equipped with a speedster body, is now available in seven body styles. These include, in addition to the speedster, a coupe roadster, victoria, tourster, brougham, seven-passenger sedan and berline sedan. The prices range from \$3,185 to \$3,885. These prices include complete equipment with the exception of the spare tires.

Service Sales Head



H. F. Bullock

As you saw by our last issue, Mr. Bullock has been named manager of service sales of the Oakland Motor Car Co. In his new position he will specialize chiefly on the sale of parts, accessories and service.

Two Chevrolets Start on South African Test

(Continued from preceding page)

"General Motors family throughout world eagerly watching your progress. All the best."

Mr. Mooney will sail from New York in time to greet the party in Europe. The first leg of the trip—Cape Town to Cairo—is scheduled to be completed within 40 days.

A wireless sending outfit, carried on the journey, will make it possible for the motorists to keep the world informed regarding their whereabouts and will be a means of flashing distress signals in an emergency.

None of the members of the party is a professional driver. Besides Capt. Lacey they are: W. Wilson, amateur wireless operator; Billy Williams, motion picture photographer; G. Makepeace, journalist.

Along the African route there is about 1000 miles of trail through swamps and deserts. Few rivers are bridged by permanent structures and where they are too wide and deep, improvised pontoons have to be made to take cars over. These pontoons consist of native canoes hollowed out of tree trunks.

Each member of the party has been inoculated against jungle fever. They carry a medical chest prepared by physicians.

Should Keep Roads Free, Reeves Urges

Public Must Block Attempt to Grab Highways, Says Motor Leader

NEW YORK, March 19—Charging that toll roads are an indefensible burden on the public, Alfred Reeves, general manager of the National Automobile Chamber of Commerce, held that the highways must be kept free, in speaking before the Rotary Club of White Plains this noon.

"If there is enough traffic on a given road to make it profitable for the private investors then there is enough traffic to warrant its being built as a public highway.

"There is at the present time a nation-wide attempt to grab the highways of the country and put them under private operation.

"There are proposals being made for toll roads right in this section. The claim of those fostering this idea is that they will render a public service and will build new highways which otherwise would not be constructed. The arguments, however, are specious, because no private operator can build a highway unless the public authority is put behind him.

"Perhaps the greatest hazard of a private toll road system would be the self-interest which it would establish building up a financial group whose chief purpose would be not only to build private roads but also to block the construction of public highways where they were most needed.

"There were 233 toll bridges in operation in the United States at the beginning of 1928, according to a recent report of the U. S. Bureau of Public Roads. Of these only 42 are owned by the states or other political divisions."

F. E. Burgess Advanced by Burgess-Norton Co.

NEW YORK, March 20—F. E. Burgess, formerly secretary and assistant treasurer of the Burgess-Norton Mfg. Co., has been named vice-president and assistant treasurer. C. M. Burgess is president and treasurer, and W. D. Smith, formerly auditor, is now secretary.

Permer With Collins Bros.

SEATTLE, March 21—John Permer has been appointed comptroller of Collins Brothers Co., Oakland-Pontiac dealer here and in Portland.

Gigantic Jobber Merger Planned

West Coast Report Tells of Ten Million Dollar Project

(Continued from page 12)

follows: Two huge distributing headquarters will be maintained in California, one in Los Angeles and one in San Francisco. From these plants a great chain of so-called "local wholesale stores," located in the smaller towns and communities, will be served with stock. And if the merger extends to the Northwest, another divisional headquarters will be established at either Portland or Seattle.

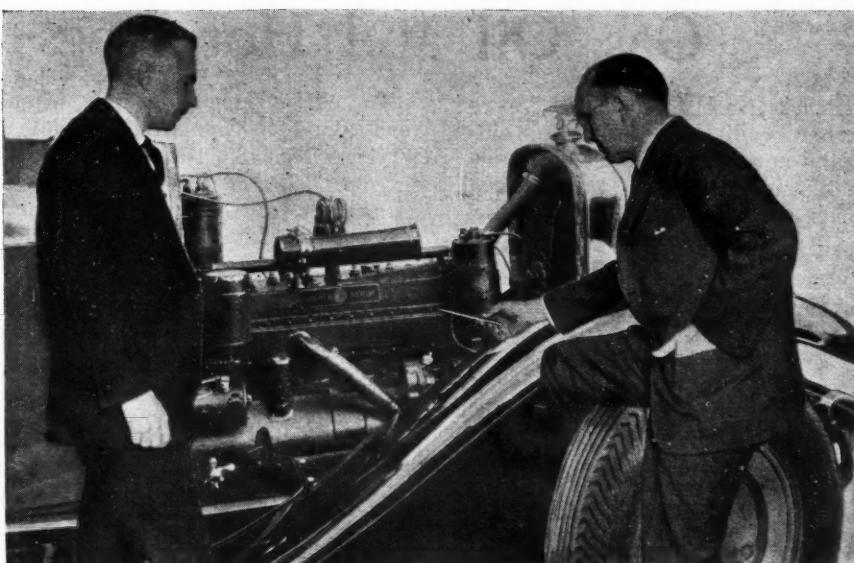
In planning the greatest development in the history of automotive wholesale distribution, the Western jobbers are determined to recapture the market that has been gradually slipping away with the changing currents in distribution. They recognize that convenience of supply from a source immediately at hand is a dominant factor in the automotive wholesale business today, and under the project now reported nearing consummation they will provide the greatest chain of automotive wholesale stores in the world, backed by a single company of tremendous strength. In this connection, it may be stated on good authority that the proposed corporation will be financed for the most part by the pooling of the combined resources of the Western jobbers, with possibly a very small issue of securities to be offered the investing public.

The jobbers have long recognized that if they are to meet the new character of competition that has developed in recent years they must do so in a concerted way. If in southern California, for instance, all four Los Angeles A.E.A. jobbers were to establish branch stores in the various communities of the territory, it would be absolutely impossible for all to make any profit. Consequently, a thorough analysis of the situation convinced the jobbers that there must be a pooling of their strength.

There is no question but that if the Western project is consummated it will lead to similar consolidations.

Cullen in Kansas City

KANSAS CITY, March 17—J. A. Cullen, manager of the Middle West division of the Peerless Motor Car Co., with headquarters here, is on a visit to Denver and other points in his territory.



A Lesson in Engine Building

*E*VERY salesman of the Gardner Motor Co. is given a thorough demonstration of the engine, either at the factory or in the dealers' service shops. Russel E. Gardner, Jr. (left), president of The Gardner Motor Co., Inc., is shown learning the finer points from W. H. Beal, vice-president and sales manager of the Lycoming Manufacturing Co., maker of the engine

Star and Durant Dealers Hold Meeting at Seattle

SEATTLE March 21—Representative Star and Durant dealers from Idaho, western Montana and British Columbia were present at a roll-call recently held here which proved to be the largest the company has had in this territory.

George R. Morris, sales manager of the Oakland branch of the Durant Motors, Inc., acted as toastmaster.

Norman DeVaux, as leader of the western Durant forces, delivered the principal address.

Frazer to Visit Spokane

SPOKANE, WASH., March 16—J. W. Frazer, general sales manager of

the Chrysler corporation, and a party of factory officials are expected to visit Spokane for one day this month, according to M. O. Hatch of the Hatch Motor Co. The exact date has not been announced by Mr. Frazer.

Takes on Hampden Line

BALTIMORE, MD., March 19—The Baltimore Buggy Top Co. has become associated with the Hampden Auto Top & Metal Co., Springfield, Mass., as distributors of that company's products in Maryland, Virginia, West Virginia, Delaware and Washington, D. C. The line includes rumble seats, rumble seat tops, seat covers and enclosures for Buick, Chevrolet, Chrysler, Dodge, Essex, Ford, Nash, Oakland, Pontiac, Star and Whippet.

The Disappointed Engineer

By Walter L. Becker

THE Express Limited is coming 70 miles an hour. It is behind time. The engineer is on the opposite side of the cab. An unsuspecting motorist is speeding down the road. He is deaf. The road is wet. The train draws near. The car draws nearer. There are no gates at the crossing. An electric signal is out of order. The Express gathers more speed. The motorist steps down on it. His machine is loaded with children. There is a terrific screech from the locomotive. It has blown for the crossing. The motorist does not hear. They thunder toward the meeting place. On and on they come, close—closer. Ten feet separate them and then—and then—the motorist sees the horrible monster upon him. Too late—too late—for an accident. He has four-wheel brakes.

Gas, Oil and Hot Dogs—Drive In

"Brack Heads Shook Sales," says another headline in the trade's oldest and newsiest weekly. What are brack heads and why did they shake sales?

"Bender Wholesale Head" reads another news headline in MOTOR AGE. We'll let you write your own gag on that one.

Five Chrysler Imperial Eighties will poohbah at the Mikado's coronation ceremonies in Tokio. "Banzai," said Joe Fields as he scanned the order, written in Japanese.

"Workman Visits Europe." This can't be our old friend, Butch McDevitt, the millionaire for a day?

Increased prices recently on a popular line were ascribed to the inclusion in the list price of bumpers and so on. What do you *sew* on an automobile?

"The best mechanic I know anything about never even finished college," says Ray Jesselson, Great Kills, Staten Island, N. Y., who handles well-known lines in New York and territories adjacent.

No matter how it sounds when read aloud to the wife, "Holmes Wrecker No. 485, the aristocrat of them all," is not a Rogues' Gallery description of a dapper Lothario.

With the development of an automatic traffic light that will turn to green when the horn of an approaching car is sounded, it has been mentioned that a motorist is now his own traffic cop. This should help—in a pinch.

It is assured that no company can ever get a monopoly in the new car industry. Well, here is an opportunity for a man (with more money than brains) to get a corner on the used car market by buying up all the old clucks.

Klinger, describing the city of the future, points out that one's speed will be limited only by the ability of his car and that there will be no cops to limit speed. Sure sounds like a modern version of heaven.

Court Sentences Man to 10 Years in Philadelphia (Philadelphia Inquirer). Guess the humor-

ist who thought that one up hadn't tasted our scrapple.

Motor, an English magazine, has a story telling of "Features of the Modern Saloon." All it shows is a lotta bodies; there ain't even a brass rail nor no sawdust nor no burlesque queen pictures. What's the world coming to?

Jim Wallace, who helps make MOTOR AGE what it is today—he hopes you're satisfied—tells of two Scots. One came over, made good and sent for his brother who arrived wearing a two-foot beard. "Why the shrubbery?" asked the first. "It's your fault," said the second. "You took the razor with you."

Fred J. Schaefer, of 1309 West Sixty-second St., Los Angeles, tells of a used car lot in his city, that carries a banner across the front. "The kind of used cars that never come back to people who always come back."

Bill Ralph relays from Boston this one about the cod on the Massachusetts license plate: "It's a Protestant fish. Its head is turned away from Mass."

John Cleary Says—

Some repair shops are so hidden and so inaccessible as to give the impression that they are engaged in secret service.

Others are apparently operated on the principle of church service, with free-will offerings from the customers taking the place of a businesslike flat rate charge.

They're all wrong, Cyril, they're all wrong.

A repair shop should be easy to get to. Its service should consist in doing an honest job of work at an honest price for an honest profit.

Spring Costumes for Milady Motorist



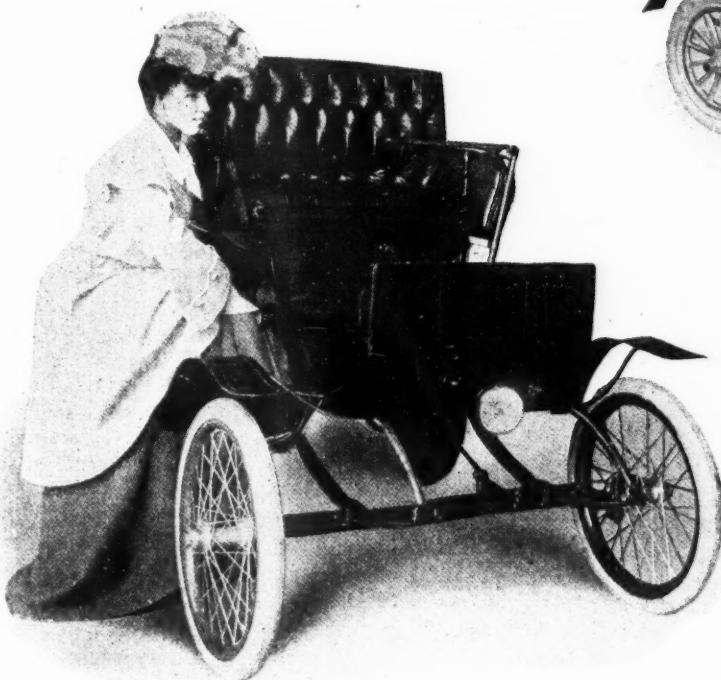
The coat in the view above is a clever combination of utility and effectiveness. It is full length to the bottom of the skirt and has the new collarless front, with divided triple cape. The complete suit in the same picture is made of an imported novelty weave and has a 27-in. top coat that is loose front and back. The skirt is made plain with inverted gores and fan bottom. (The hats are beyond description)



For the use of the woman automobilist under the fair conditions of ordinary driving, it is readily noticeable that a type of clothes has been produced which is acceptable for both utility and effect. The designers have evidently striven to create garments which are distinctive, but which are still free from any suggestion of freakishness or from the ultra-indulgence of a desire to go the limit in oddity. They represent common-sense garments. Above is shown a coat with detachable hood and long cape sleeves of inverness cut. It is 54 in. long. The other is 40 in. with fly front. (The hats are beyond description)



The full suit shown in the picture above is a tailored garment of Scotch homespun, with a full 38-in. length coat, belted in the back. The coat has a velvet collar. The skirt is pleated in both the front and back, with gored sides. The coat shown in the same picture is a 40-in. garment of the swell and swagger variety. It has inverness cape sleeves, loose belted back and inlaid velvet military collar. (The hats are beyond description)



A stylish novelty is the coat at left. It is made of black and white checked men's wear cloth and is 48 in. long. It has belted back, new sleeves and cuffs, both of which are gun metal trimmed. The collar and front of coat are faced with white broadcloth. The cape is of the full five-row military style. The cape, cuffs and belt are white broadcloth piped. (The hat is beyond description and faintly reminiscent of the chapeau worn by Queen Mary at the last Ascot races)

Horseshoes Nix!

By JOHN CLEARY

TWO Peerless salesmen—Tom Barnes and Ed Hastings—were talking about Tommy Loughran's chances for the heavyweight title when the middle-aged couple came in the showroom. The two visitors walked toward the car nearest the door, a Peerless Six sedan.

It was Barnes' turn on the floor. He broke away from Hastings and approached the couple.

"Good afternoon," he said, "are you interested particularly in the sedan?"

"I've been thinking some about an enclosed car," answered the man, "but I guess this sedan is too high-priced for us."

"It's a fine car," said Barnes, "thinking of buying soon?"

"N-no," answered the visitor, "we're just looking around."

"Go right ahead," said Barnes, "and if there's anything you want to know about it, just ask me." He returned to Hastings to continue his discussion on pugilism.

The couple gazed at the sedan a few moments, then turned to leave. Just before they reached the door a man entered from the sidewalk.

"Wonderful car, isn't it?" the newcomer greeted them, pointing to the sedan.

"Yes," said the man, "we had been thinking of buying an enclosed car, but I'm afraid this one is too high-priced for us."

"Oh, I hardly think so," answered the other, with a smile. "But don't you agree that its lines are beautiful, Mr. —?"

"Gallagher is my name."

"And mine is Mason," said the other. "I'm a salesman here. Won't you step over and look at the car, Mr. Gallagher?"

"You will notice," said Mason, as he opened the rear door of the sedan, "that this is an exceptionally wide door—in fact, all four of them are. And the seating arrangement for all five passengers makes for great comfort."

"The upholstery is a high grade of mohair velour. And the harmony of upholstery, window shades and floor covering is beautiful. Don't you think so, Mrs. Gallagher?"

"Very," she agreed, "but I'm afraid the price is——"

"Not at all," interrupted Mason. "Just try that seat. Notice how low the running board is as you step in. Just the right height, isn't it? And those cushions—aren't they comfortable, restful?"

"The cushions are built of sensitive, individually nesting springs, white cotton batting and a high grade of curled hair. Notice how wide the seat is. There's ample room for three good-sized persons. And, to add to the comfort, we have armrests at both sides."

"The footrest is in the most comfortable position, too, isn't it?" he went on. "Don't you think, Mrs. Gallagher, that our designer used excellent judgment in the metal trimmings? The dull silver finish of the door handles, window regulators and dome lamp rim are in very good

taste, aren't they?" he continued, as he snapped on the dome light and lowered one of the windows.

Leaving the lady comfortably seated, Mason gave his attention to details likely to be of more interest to the man.

"The wheel just fits your hand," he said, "and the brake and clutch pedals are placed so that your driving position is unstrained. There is a cowl ventilator here, and there's the rain and sun visor."

Mason opened the hood.

Barnes and Hastings still conversed in a corner of the salesroom. At this point Barnes caught Mason's eye and pantomimed "thumb's down" to indicate that the Gallaghers were only "lookers" and that Mason was only wasting his time. Mason ignored the tip. He turned to Mr. Gallagher.

"This engine was brought out only after long experimentation and development," he said, "and it was put through the most severe tests to show that it was worthy of the Peerless name—you know we have been building quality cars for 27 years. We consider it a worthy companion to our Equipoised Eight."

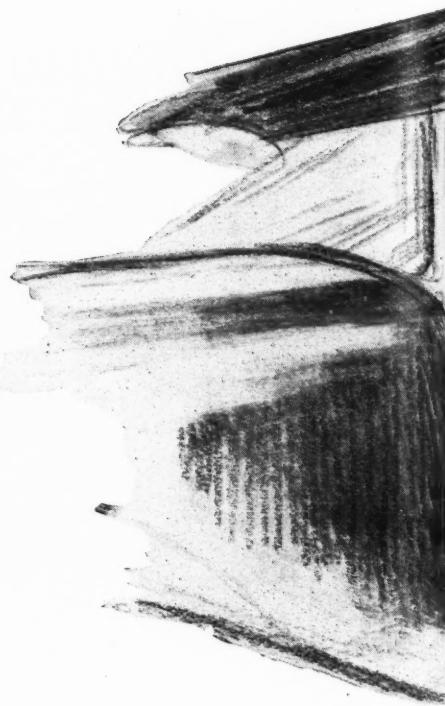
Up to this time Mason had circumvented interruptions on the part of his prospect, but Mr. Gallagher finally succeeding in getting in a word. And it convinced the salesman that he was making progress.

"What's the price of this car?" Mr. Gallagher wanted to know.

"The price is surprisingly low for a car of its quality, and much less than you would expect," evaded Mason, "particularly when you consider that many owners say they prefer it to higher-priced cars they have owned."

Mason enthusiastically described the engine and its performance, and then waited for questions on the powerplant. None was forthcoming, so he told about the riding ease that resulted from the spring construction, the smoothness in starting and stopping made possible by the torque arm. He called attention to the fabric connection at the front end, the soft construction of the top.

He continued until he had touched upon most of the



It Was Jim Mason's Salesmanship That Sold the "Lookers" a New Automobile and the Idea of Keeping Their Old Bus

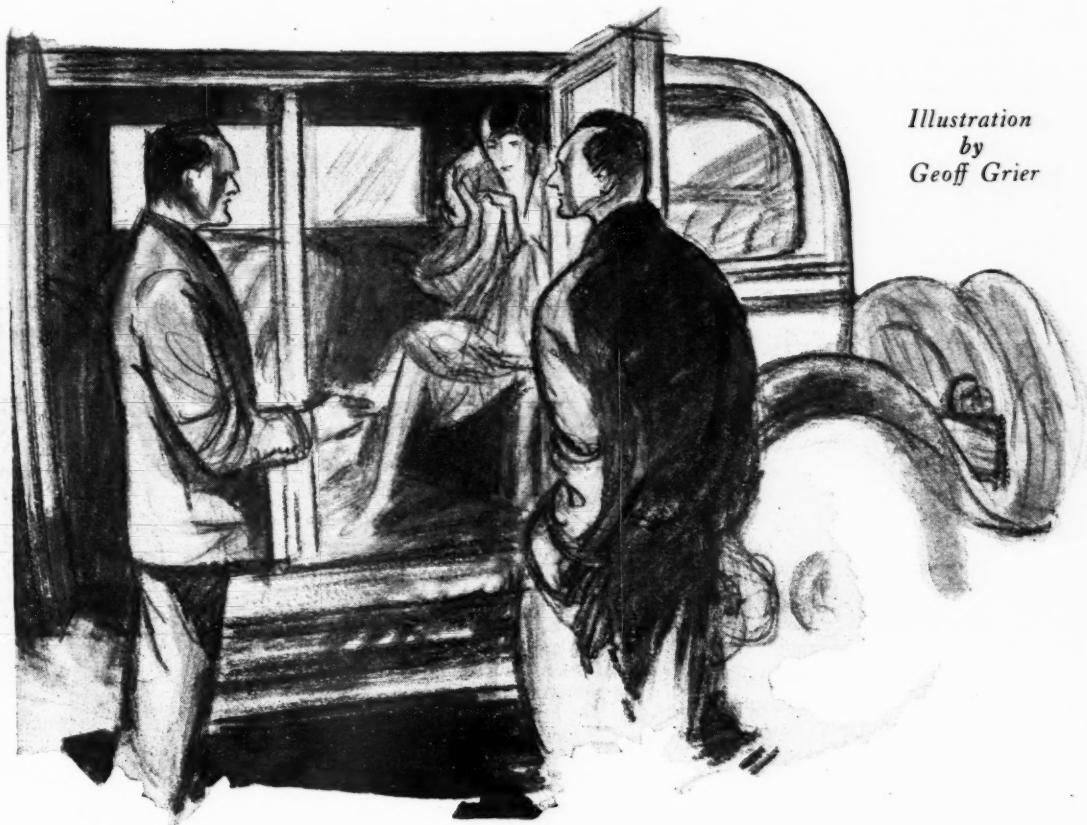


Illustration
by
Geoff Grier

Mr. and Mrs. Gallagher had departed.

"Horseshoes hell," said Mason. "That was what I call salesmanship. Take it from me, anyone who is enough interested to come in our salesroom to look at our cars—and brings his wife with him—is worth cultivating — even if he isn't ready to buy. But I know you fellows will insist on the horseshoes, particularly when you learn that I was only coming into the place to turn over an order that I just got from Old Man Simpson in his office."

That was precisely what had happened. It was not Mason's day on the floor. He had been out calling on owners and prospects, telling the Peerless story to all who would listen to him. For the fourth time that week he had called on Athel Simpson, the banker. On this fourth call he got the breaks he was hoping for.

Jim did not know that Old Athel's daughter had been campaigning that morning for a new car. But Jim did know that the best way to make money selling automobiles is to call and keep calling.

Salesmen with the horseshoes complex will contend that Amytis Simpson was the one who really sold her father the new Peerless, and that it was only an accident for that lucky stiff, Jim Mason, to happen in at the psychological moment. But Jim's call was not accidental. Simpson's name was the most prominent on his list. He got the order, at any rate, and, like the good salesman he is, he beat it to the office immediately to set the machinery in operation for a prompt delivery. It was on his return to the office that he almost literally ran into the departing Gallaghers.

Epilogue.—Jim Mason, wise as ever, did not send an "appraiser" to look at the Gallaghers' open car. He went himself. He raved so much over the service that was still left in the old car and was so convincing in his argument that it was worth considerably more to the Gallaghers than to anyone else, that they kept it for their grown son, thereby joining the ranks of two-car families. Net results—a clean deal for the house, full commission and two new friends for Mason, and satisfaction for the Gallaghers.

features in which he believed his prospect would be most interested. He had managed to make his sales talk without having its continuity broken by the prospect. He did not have to try any trick questions to learn whether his prospect was following him or not—he knew he was.

Opening the door to the driver's seat, he invited Mr. Gallagher to enter.

"Just sit behind the wheel, Mr. Gallagher," he said, "and see how comfortable the driving position is."

Mr. Gallagher sat behind the wheel.

"May I ask you again, young man," he said, with a twinkle in his eye, "what is the price of this car?"

"Certainly," smiled Mason, "but wouldn't you like to have a ride in the car, to see how smoothly it operates?"

"No," said Mr. Gallagher, "I know how it rides. A neighbor has one of your coupes. What I want to know is what is the price of this car?"

"I know you'll be astonished," said Mason. "You can drive this car away as she stands for \$2,085."

Mr. Gallagher turned to his wife, who was still seated in the car.

"What do you think, Helen?" he asked.

"I think it's a very comfortable car, George, and I don't see why we shouldn't have it."

"Sold," said Mr. Gallagher. "Send your appraiser around to look at our open car, Mr. Mason, and we'll get the matter closed."

Barnes and Hastings, over in the corner, almost gasped.

"Talk about horseshoes," said Barnes to Mason, after

The Human Touch

*Puts Over Year-Old Business
Manned by Employees Not
Able to Boast a High
School Education*

By Wayne G. Miller

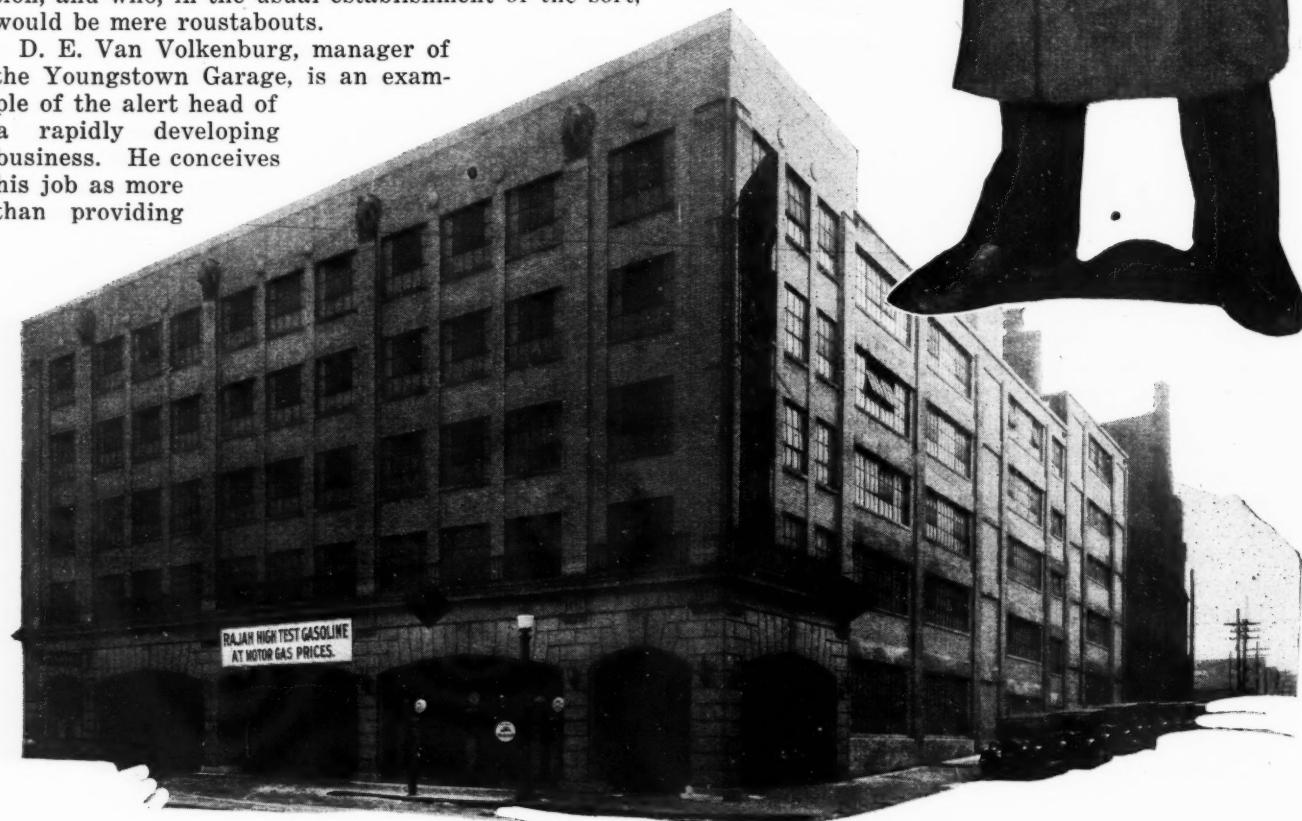
THE human touch," much talked about by high-pressure salesmen, social reformers and ministers, is being used by the Youngstown Garage, Youngstown, Ohio, to do rather a large bit in the rapid development of this year-old storage and automobile hotel firm. The touch is being administered by some 16 fellows of ages varying up to 30, none of whom has a high school education, and who, in the usual establishment of the sort, would be mere roustabouts.

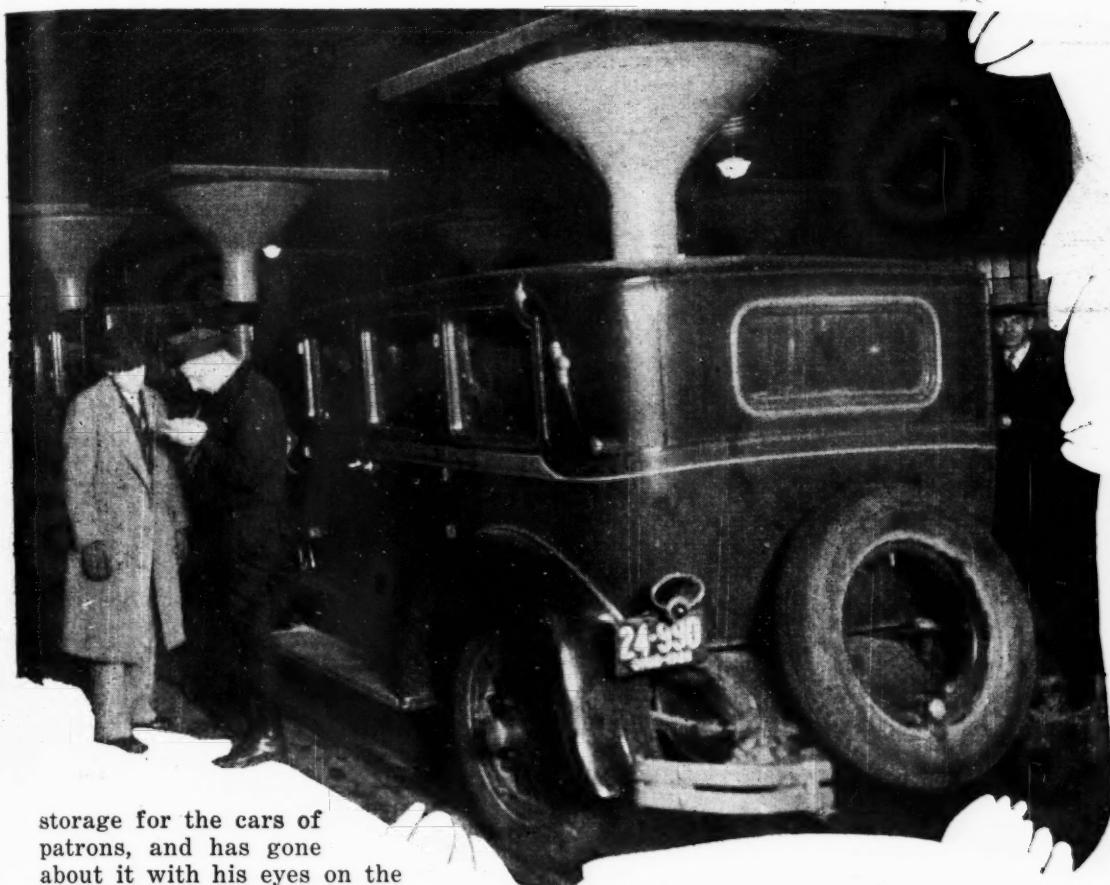
D. E. Van Volkenburg, manager of the Youngstown Garage, is an example of the alert head of a rapidly developing business. He conceives his job as more than providing



Right: D. E. Van Volkenburg, manager of the Youngstown Garage, Youngstown, Ohio, who played personalities and made them pay

Below: A view of the Youngstown Garage





storage for the cars of patrons, and has gone about it with his eyes on the essentially human aspects of the business.

Probably in no single phase of Van Volkenburg's leadership is this fact more clearly demonstrated than in his management of the employees of the garage as a means of rendering maximum service to garage patrons.

"Mr. Van," as the boys call him, came to the managership of the garage from outside the industry. He found himself a year ago at the head of an organization consisting chiefly of this group of young men, and realized that through them, with their often uncouth manners and their careless habits of speech and dress, he had to make whatever impression on the patrons of the garage those patrons would receive.

But "Mr. Van" had been a scout-master for several years, and he soon found that the "boys" who took charge of patrons' cars at the front door and delivered them again when the owners called for them later, were pretty much like the boys who used to salute him as scout-master.

"I called them in and pointed out to them that this type of garage is a new thing under the sun," he said, explaining his methods of securing a quality of service rare in institutions of the sort. "I told them it was up to them and me to develop this place into a real business, and that we had every chance to grow personally and financially as the business grew. I tried to show them that their chance was similar to the chance of any leader of business or industry who starts in on the ground floor of a new proposition and grows up with it.

"It wasn't long before I found that the place was cleaner. Formerly, sponges were to be found lying in corners, litter accumulated everywhere, and the entire establishment had a slovenly and careless aspect. Morale among the boys was low, and the turnover on the payroll was high. All that is changed now, and,

How the boys at the Youngstown Garage meet customers and, in the instant before driving the cars away for storage, sell them service

while we are not by any means through improving, we can see that a great deal has been accomplished in the right direction."

The human emphasis placed in the organization by Van Volkenburg as almost his first official act has been extended to a point where every patron of the garage feels it. He

feels it when he surrenders his car to a trim, courteous chap to be driven to one of the upper floors of the garage for storage. He feels it in the salesmanlike manner in which the boy suggests oil, gasoline, washing, brake service, tire service, chassis lubrication, top dressing, refinishing, or any other of the many services afforded by the garage.

"Mr. Van" has trained his "boys" as one-minute salesmen, and the neat figures on the bookkeeper's record, backed up by a stack of salesmen's books in the manager's office, indicate the value of such training.

"Some of these boys were so timid they would scarcely say anything to a patron at first," he said. "Gradually, following the lead of some of the ones with more poise and confidence in themselves, they began suggesting various services which we offer, and now every one of the 16 boys on the floor is a more or less successful salesman. This is the more remarkable when you remember the limited school training our boys have, and the exceedingly short time in which they must make their sales—just the minute while the customer is sliding out from under the wheel and the boy is getting into the car to drive it up the ramp to a storage floor."

Each boy has a sales book with carbon slip. The book cares for 50 orders, and when it is filled up it is turned in and goes to "Mr. Van" for analysis. The salesman gets \$1 bonus on each 50 orders. The carbon copies in the sales books are used in checking up on the types of service being sold. If it is found, for instance, that a certain boy is selling nothing but gasoline, he is called in and given whatever training he may require to enable him to sell the other services.

Every assistance possible is given the young salesmen by the management. Sales schools are held reg-

THE HUMAN TOUCH

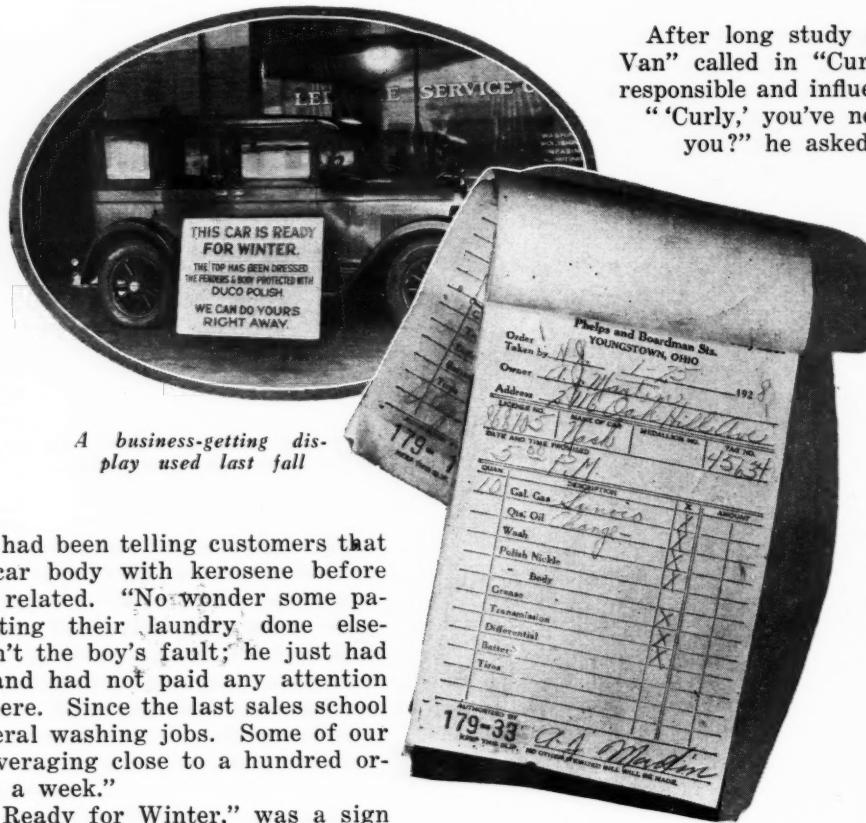
ularly, in order that all the boys may know all they wish about the garage business. Frequently their ideas on so simple an operation as the washing of a car are absurd, Van Volkenburg said, and likely to hinder rather than help the business.

"We found a while ago that one of the boys had been telling customers that we sprayed a car body with kerosene before washing it," he related. "No wonder some patrons were getting their laundry done elsewhere! It wasn't the boy's fault; he just had not been told, and had not paid any attention to the process here. Since the last sales school he has sold several washing jobs. Some of our boys are now averaging close to a hundred orders for service a week."

"This Car is Ready for Winter," was a sign calling attention to a Whippet that, after 11,000 miles, had received a new coat of finish and top dressing and which stood in front of the garage last fall. This was another of the aids which Van Volkenburg provided for his salesmen. Incidentally, so many wash-rack jobs were turned into refinishing jobs that the average income per car at the rack was boosted from about \$1.75 to between \$5 and \$6 over a period of five weeks. This spring the same idea will be used to help the boys sell the idea of dressing up cars for summer.

Van Volkenburg is a staunch believer in nationally advertised products for his amateur salesmen. The garage has tried this out in gasoline and oils in particular, and the manager believes he has proved the soundness of his position on the question. A nationally known product and a local product were offered. A boy trying to sell the local product frequently found himself involved in a fruitless argument, "Mr. Van" said, but the boy selling lubrication service finds no occasion for argument or long consideration when he mentions a service which is known wherever automobiles are known.

At certain times of the day the pressure at the entrance is pretty high. This is when patrons are arriving with their cars, which must be moved to the upper floors in order to keep the entrance clear. A similar situation develops in the afternoon, when everyone is in a hurry to get his car and go home. At these hours the boys are kept on the jump, and in their haste in parking cars or removing them from the crowded storage floors fenders were frequently scratched or smashed. The boys were blamed, too, for a certain percentage of fenders which were in bad shape when the cars were left at the garage, but it was difficult to determine which were these cases. Reports of accidents from the boys were rare.



The order book used by the "salesmen" of the Youngstown Garage. For 50 orders a bonus of \$1 is paid. Carbon slips make it possible for the employer to determine the selling weakspots of the employee

After long study of the problem, "Mr. Van" called in "Curly," one of the more responsible and influential of the boys.

"Curly, you've no use for a liar, have you?" he asked. "No, sir."

"How about the fellow who protects another chap that's lying?"

"He's just as bad as the liar," Curly declared vehemently.

"That is correct! Now, as I see it, the chap who cracks a fender here and doesn't report it is putting me in a position where I am likely either to tell a lie, or to protect the boy when he tells a lie. Don't you think that when you see a fellow smash a fender you've got to report it, if you're honest?"

"Well, I'll be damned," was "Curly's" only answer. But

from that time on, Van Volkenburg says, there has been no trouble in getting reports of accidents. The boy who smashes into another car moving an automobile, in nine cases out of 10, promptly reports to "Mr. Van" personally.

If he hesitates, he is reminded of his duty by another boy. Best of all, the number of crashes has been considerably reduced.

"Of course, we've had to let some fellows go, and some have gone of their own accord," Van Volkenburg said. "When we get a shirker on the force, the other boys just naturally run him off the floor. But most of the boys like the constant activity here, and stay with us."

"Then, too, they realize we are giving them something besides their wages. We are building valuable stuff into their personalities. 'Curly' for instance, is already acting as a sort of assistant manager, and I'm trying to give every boy a chance to do the highest type of work he is capable of doing. I'm trying to keep my promise to them that they had a chance to grow as the business grows. And we're building up a business faster than any of us thought would be possible a year ago."

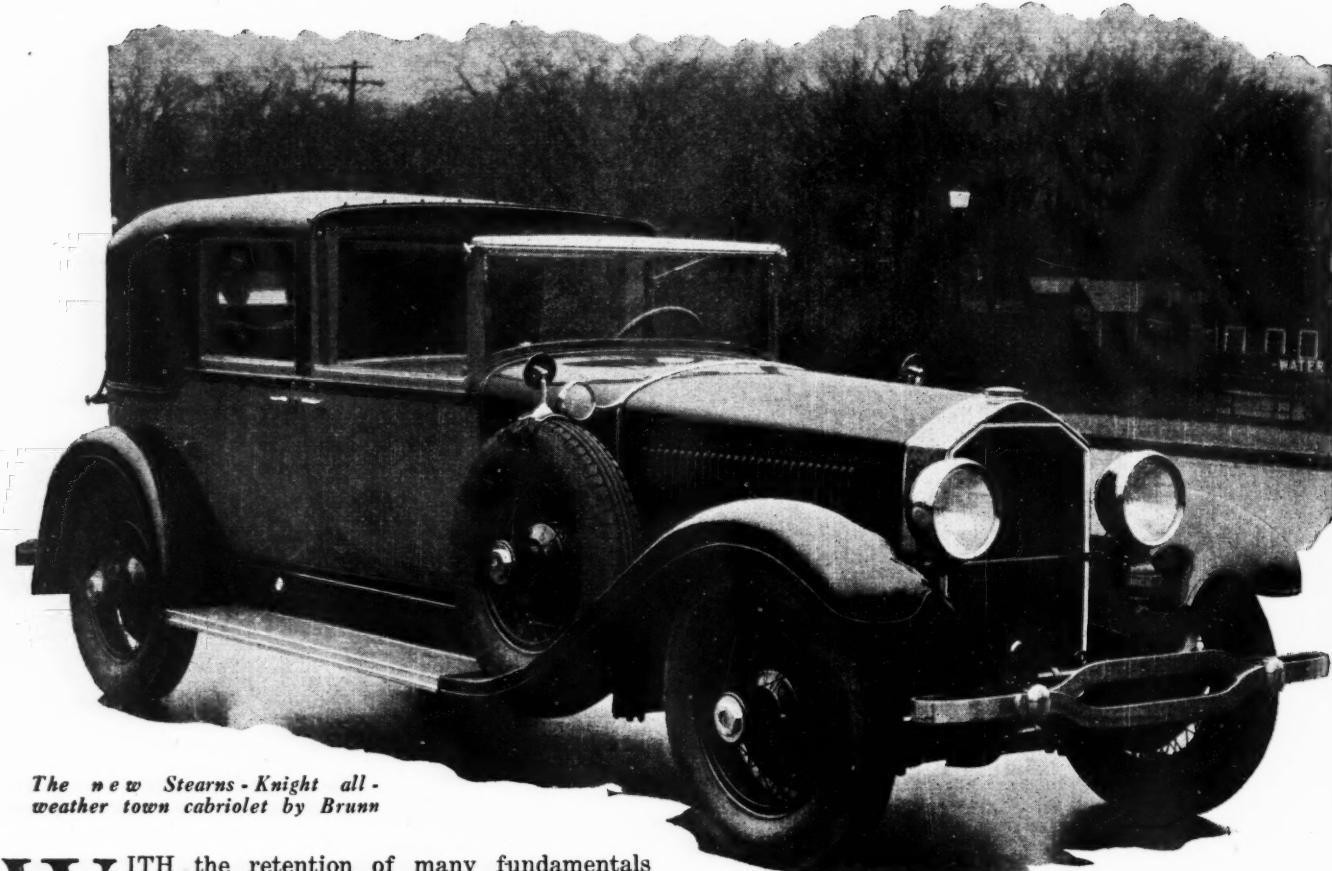
What is believed to be the world's slowest speed limit has just been discovered in the little town of Montelimar, France. Existing traffic regulations provide that no motor vehicle may travel faster than 7 m.p.h. The town is situated on a highway between Paris and French Riviera, and approximately 200 arrests a day are made. The only redeeming feature is that the fines are exceedingly low, ranging from 25 cents to \$3.

Pete Keenan



A MOTOR AGE IMPRESSION = LEON R. GERMAN
Vice-President and General Manager, = Peerless Motor Car Corp.

Stearns Produces De L



The new Stearns-Knight all-weather town cabriolet by Brunn

WITH the retention of many fundamentals of design found in the Stearns-Knight cars a year ago, the F. B. Stearns Co. has brought out a de luxe line for the high-priced market. These cars come in 137-in. and 145-in. wheelbases, and prices are from \$5,000 to \$7,000.

All de luxe series cars are distinguished by larger, lower, longer bodies reflecting the influence of European practice; new radiator shape of higher, narrower design; full-crowned fenders and a host of refinements in interior and exterior appointments. A total of ten body models grouped as follows are available on the de luxe chassis: 137-in. wheelbase: Rumble seat roadster, convertible coupe, straight seat coupe, sedan, limousine. 145-in. wheelbase: Touring, limousine, sedan, two special custom town car bodies.

As compared with the standard eight-cylinder line, the prices of the de luxe series are approximately \$1,000 higher than the corresponding type on the regular line. Seven-passenger models and the two special town car custom bodies are offered exclusively on the longer chassis while the balance of the line is available on the 137-in. chassis.

The chassis may be briefly described as being powered with a double eccentric shaft dual-sleeve-valve engine of 112 hp., a double plate clutch and three-speed transmission, with an underslung worm drive. The double drop frame is featured by a squared box section side members at the forward end. Internal four-wheel Bendix brakes are mechanically operated with a straight line linkage outside and parallel to the frame. The front springs are anchored to the frame at their rear

end, being shackled at the front to give a more accurate steering hook-up.

The engine develops more than 112 b.h.p. at 2800 r.p.m. A standard compression ratio of 5.00 to 1 provides a torque of 285 ft. lb. at 800 r.p.m. and which is almost constant up to 1600 r.p.m.

The cast-iron cylinders formed *en bloc* and bolted to the aluminum upper half of the crankcase have a bore and stroke of $3\frac{1}{2}$ x 5 in., giving a piston displacement of 385 cu. in. The water jackets are arranged so that they extend over the complete length of piston travel insuring uniform cooling for the sleeves at all points. The individual cylinder heads bolted to the block in conventional Knight manner by six cap screws are cored for water passages—the latter completely surrounding the centrally located overhead spark plugs providing adequate cooling for the combustion chamber and plugs. A polished cast aluminum cover encases the entire cylinder head assembly.

Complete insulation of the powerplant from the frame is provided through bolting the rear motor supports to conventional Bellflex rubber-fabric shackles mounted vertically between the frame channels, while at the front the arms are insulated from the support brackets by thick sections of rubber composition—thus providing an integral yet fully insulated mounting for the powerplant in the frame. An AC fuel pump is geared to the right eccentric shaft at the rear. The counter balances of the crankshaft are separately drop-

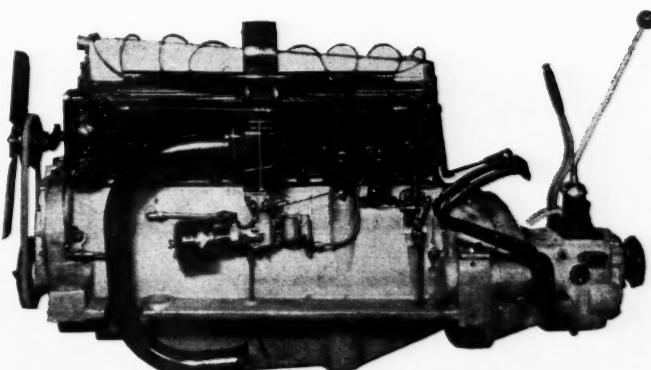
Lux e Line

Enters Higher-Priced Field With Series Priced From \$5,000 to \$7,000. Two Wheelbases Offered

forged and electrically welded to the crankshaft forging, the unit weighing complete 136 lb. Nine bearings of the narrow face, large diameter type are used to support the crankshaft. There is no offset to the crankshaft. The crankshaft fan pulley, being formed of extra massive construction, acts as a damper to minimize the effects of torsional vibration.

The mixture from the Tillotson carburetor is delivered to the engine through a square section intake manifold to provide maximum turbulence. Between the centrifugal type Tillotson air cleaner and the carburetor there is a connection between the air intake section and the crankcase to provide a system of ventilation for the crankcase. The two-bladed Oakes fan, 20 in. in diameter, is driven directly from the crankshaft pulley by a V-belt, adjustment being provided by an eccentric mounting of the fan bracket.

All three electrical units are of DeJon make. The starter mounting is so designed that the starter can be fitted to either side of the crankcase according to the placing of the steering column for domestic and export markets so that maximum clearance and accessibility is always available.



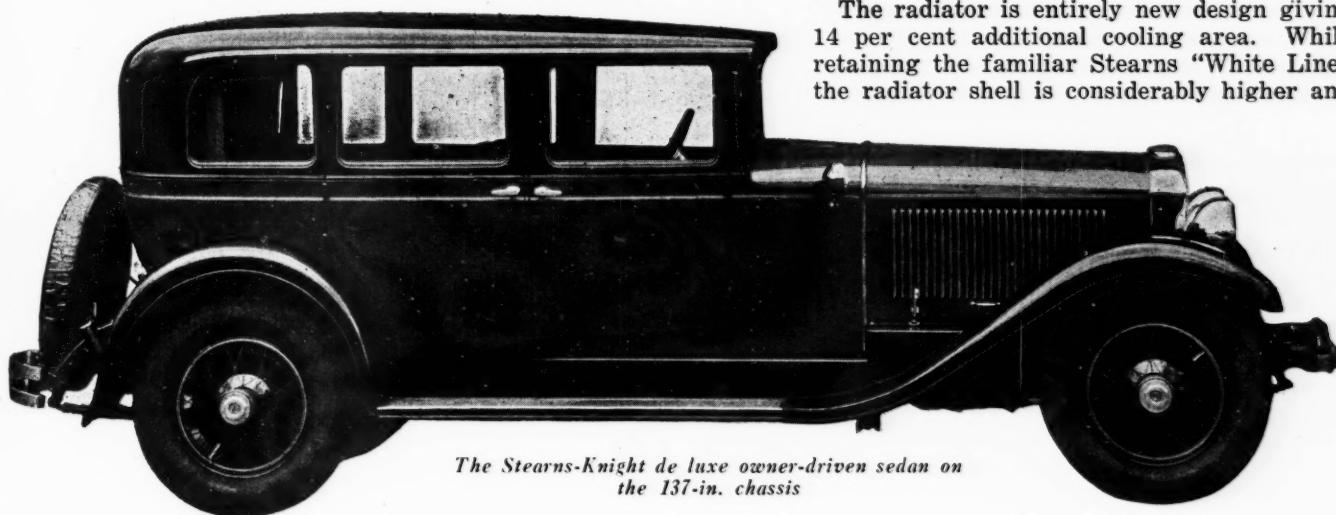
Note the over-the-top method of carrying the exhaust

smooths out any "transmission rattle" at varying speeds. The clutch unit has the front end of its pilot shaft supported in an annular ball bearing in the rear of the flywheel while the clutch thrust bearing is also of the annular type. Lubrication of the latter is by an oversize oil reservoir through a wick feed. There is a total of four separate friction faces in the clutch disks with adequate adjustment provided to compensate for wear. The clutch assembly is tested for static and dynamic balance before mounting.

The underslung worm drive rear axle built by Timken enables a lower body construction to be employed and makes for maximum silence in operation at all times. Of the semi-floating type and providing a ratio of 4.50 to 1 this axle is almost identical to that employed on the standard eight cylinder chassis. Likewise, the front axle of the de luxe series corresponds with that of the standard eight chassis.

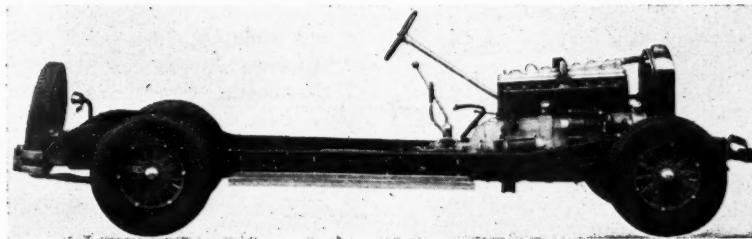
The battery on the de luxe series is carried in a special compartment readily accessible through a spring cover plate in the front compartment.

The radiator is entirely new design giving 14 per cent additional cooling area. While retaining the familiar Stearns "White Line" the radiator shell is considerably higher and



The Stearns-Knight de luxe owner-driven sedan on the 137-in. chassis

Power is transmitted to the rear axle through a 10 in. diameter double plate clutch of Long make and a three-speed transmission. A feature of the clutch unit is the embodying of a spring dampening device which



Chassis, showing double-drop frame and inclined engine

narrower, following latest European practice.

Maximum comfort is assured for the rear passengers in the de luxe series cars by adopting a rear tread of 59% in., thus allowing a full seat width of 49 in.



*And in a remarkably short time
Rudy found himself facing a police
magistrate*

ANY attempt to mix joking and story-telling with good, honest, sane work can lead to one end only—disaster. A very good illustration of which is in the sad case of "Rudy" Kastorff. Few mechanics were better than Rudy, as long as Rudy put his heart in his work, kept his mind on what he was doing. But of late—up to the time that Rudy learned his lesson—he seldom worked under these conditions.

One morning he was assigned to a job on which the steering gear of a car needed a general tightening up. Although his fellow-workers paid little attention to him, he gave free rein to the jocular mood which at the time had full possession of him. After a snatch or two of half a dozen popular songs, which proved of considerable annoyance to the other mechanics, he asked, apparently of the world-at-large:

"Which side of a horse has the most hair on it?"

After a reasonable time, during which the answer was not forthcoming, Rudy guffawed, "The outside! Ha, ha! That was a hot one, wasn't it?"

For a moment or two, as he thought up another one, the sound of his tools came from underneath the car, in the vicinity of the steering knuckles and rods. Presently he asked again:

"Why does a man close one eye when he shoots at anything with a gun?"

Apparently he thought this was too deep for his listeners, and almost immediately he again supplied the answer:

"Because if he closed both eyes, he couldn't see what he was shooting at! Ha, ha! How's that one?"

That the poor, misguided boy was engulfed body and soul in his joke-making was evidenced by the fact that, even though the other mechanics regarded it

The High C

Illustration by Ed. Reid



only as an annoyance, he continued the same as though his audience were hilariously appreciative. His tools became silent as he slid from under the car and sat up on his creeper.

"Why does an Irishman pound the pepper box and a Dutchman shake it?"

Then, almost in the same breath: "To get the pepper out! Ha, ha, ha! Guess that'll hold you guys for a while!"

Then, again the sound of his tools, mingled with—"Did you guys ever hear the story about the farmer that never took a bath or dressed up, and decided while in town one day to surprise his 'Old Woman' and bought a whole new outfit of clothes and put 'em under his wagon seat and stopped at a creek on the way home to take a bath and threw his old clothes in the water and told 'em goodby as they floated away, then, after he took his bath, he went to get his new clothes and found out somebody had stole 'em? Well—."

But at this point the story-teller was interrupted by the foreman coming into the shop.

"How's that job coming along?" he asked.

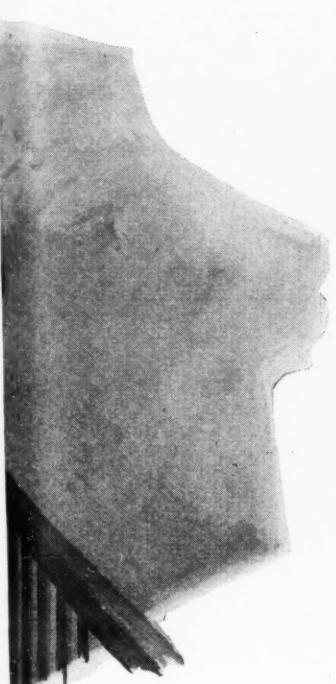
"Almost done," came disappointedly from underneath the car.

"Well, step on it," ordered the foreman, and get

The Cost of Horse-Play

Rudy Learns That Joking and Mechanics Don't Mix

By W. F. Currington



everything in good shape. The customer's in a hurry for it.'

"All right, I'll shoot 'er around the block when I get through to make sure the rattles are all gone," grunted Rudy.

Some fifteen minutes later, as he was driving the car along a street, on which traffic was rather heavy, it swerved suddenly to the left and crashed into another car driven by a woman. There followed the usual excitement and confusion attending such incidents, and in a remarkably short time Rudy found himself facing a police magistrate.

"Oh, that's all right," he scoffed in reply to the rapid-fire questioning. "I'm over at the Arcade Garage. Let me call up my boss. He'll fix everything up."

When the connection had been established, he said rather indifferently into the phone:

"I've had a smash. They've got me in the jug. Come down and get me out."

But the anticipated condescension on the part of Calvin Brunet, proprietor of the Arcade, failed to materialize.

"How did it happen?" he snapped, his tone dissipating, somewhat, Rudy's cocksureness.

"Oh—ah—I was just driving along, trying out a car I'd been working on. I guess—I guess I musta got in the car tracks—it was a little slippery. I shot across the street and hit a big sedan."

And then Rudy's spirits took another decided drop as his employer's voice again came over the phone:

"All right, I'll look into the thing and see what can be done."

Mr. Brunet accompanied his wrecking crew to the scene of the accident, where it was discovered almost immediately that the steering arm on the car that Rudy had been driving had become detached from the cross-shaft of the steering gear sector. Back in the shop the nut which should have been holding this arm in place was found lying on the floor where Rudy

had been working. A short time later Rudy was apprised of this fact by his employer.

"Did you take that nut off?" he was asked.

"Yes," answered Rudy, "it was loose and the lock washer was broke and I took it off to put on a new one. I—."

"Did you put it back on?"

"I—I think I did, but I had to crawl out from under the car for something—maybe—maybe I forgot it."

"You certainly did forget it," declared the owner of the Arcade. And then he continued, "The shop foreman tells me that you were in the midst of telling a story when he came in and told you to hurry the job along. Doubtless your mind was on the story, and not on your work. I have noticed that this story-telling of yours has become a habit. A very bad habit. You can see what it has got you into. And now, for your own good, I am going to wash my hands of the whole affair and let you get out of it the best way you can. Perhaps by the time you square yourself, you will know enough to cut out the story-telling and joking and settle your mind on your work."

Inasmuch as this was Rudy's first offense of the kind, the judge was inclined to be lenient, giving him his choice of going to jail or settling all damages, including the woman driver's bill at the hospital, where she was confined for some time, suffering from shock.

Rudy, of course, chose the latter, notwithstanding that the total amount of the bill was staggering to one of his financial resources. So staggering, in fact, that he was able to construe a pretty accurate picture of the interior of a prison cell. But his employer, after having noticed that the lesson was having the desired effect, relented to the extent of advancing payment of the bill, on the condition that Rudy "work it out."

There followed an almost endless succession of paydays on which Rudy's envelope contained a sum sufficient only for the scantiest kind of living expenses. So prolonged, in fact, was this period of "mere existence" that the lover of stories and jokes had no end of time to give serious thought to the cause of it, and to master the art of applying his mind strictly to his work. For example:

One day, when he was assembling a rear axle, the foreman called him away temporarily to take care of an emergency job. When he returned, some thirty minutes later he spent the better part of a minute with only his brain active—and which, by the way, is one of the most profitable things any mechanic can do under similar circumstances. Although with his present carefulness, Rudy knew exactly what he had already done, he was taking no chances on "slipping

(Turn to page 41, please)



"Now, You Fellows

ANDREW CARNEGIE said, "If your business is worth any of your time, it is worth all of it. The average man puts 25 per cent of his energy and ability into his work. The world takes off its hat for those who put in more than 50 per cent and stands on its head for the very few and far between who devote 100 per cent to the job."

No less than 20 of Carnegie's "mill-hands" became millionaires by adopting his advice and methods. They stuck to the job, gave it barrels of time and thought, studied at home nights—and the world stood on its head for them, just as he said it would. It is the same world today.

You can afford to put everything you've got into your work because you know your reward is certain. Your work affords you a chance to make good and to bring yourself in line for promotion. Your job, your work, is your opportunity. Work stored up is wealth. Work is the sole support of millions. Work is back of every good and constructive thing. Without work there would be no rich men. Work—hard work—is the foundation of any business. Outside of bootleggers, did you ever hear of anybody getting arrested for working? The so-called key to success is a simple thing: Fix your mind on what you want in life, then work for it, and it is yours.

Did you ever walk down the street in a hurry and notice how all the pedestrians made room for you? Did you wonder why? Here is the reason: Four-fifths of the people on the sidewalk are not going anywhere; they're just walking around. A busy man comes down the street doing his stuff and the loafers make room. The same thing applies all through life. Be going somewhere—doing something all the time. It is what you do and want to do today that decides all of your tomorrows.

That means initiative, which means knowledge with plenty of imagination, a spirit of daring, and clear, quick thinking. The rivers of business are swiftly changing. Every minute of the day you meet new emer-

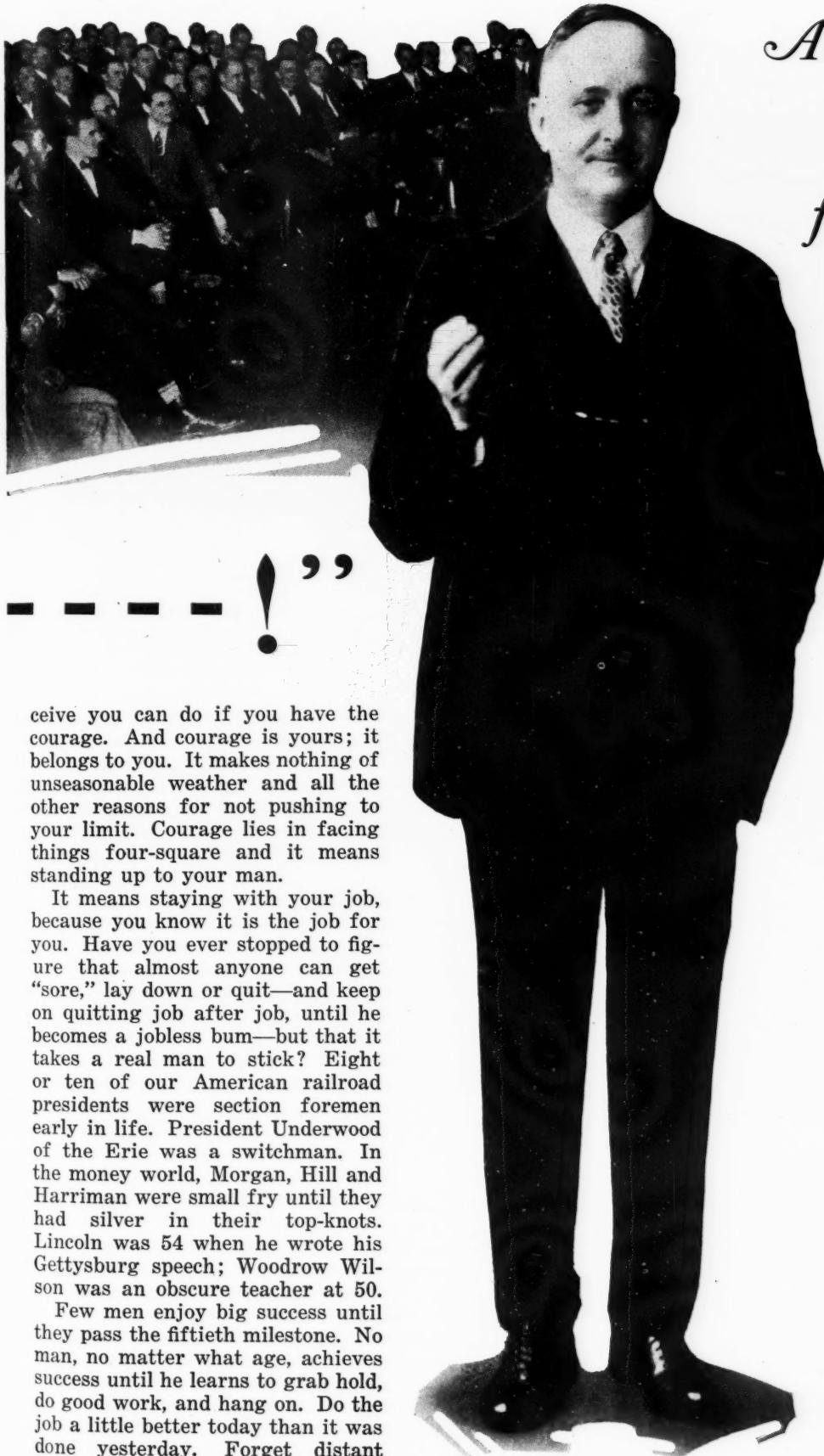


gencies requiring initiative. When do you expect to do the big things you are dreaming about? Why don't you begin? What are you waiting for? Where is your courage? Haven't you any "dare" left in you? When do you start? The big money goes to the man with initiative. He is always one jump ahead of competition. He can always tell you how he got the business—not how he lost it.

He is good at self-analysis, that chap. The analysis that takes stock of his strong points, which are to be accentuated, and of his weak points, which are to be eliminated. What do you think of the fellow you call "yourself" or "me"? Your opinion of yourself, your self-respect, is going to have much to do with your success in this life, because a man, good or bad, is a product of his own thoughts.

Nobody likes a man who has the "big head," but everybody respects a man who has spine enough to believe in himself, to trust himself, and to know exactly what he is doing, why he is doing it, which way he is headed, and when he is going to get there. Self-respect is the father of self-confidence. Moreover, the man with his self-respect well-oiled is going to keep clean morally.

He has the grip that comes of courage, that chap. James Allen says that next to a man's honor his courage is his greatest mental quality. The courage to tackle a thing and the courage to carry it through is about all you need in this world of opportunity. Take a big man. When you get close to a big man, you find he is plain human, no whit greater than yourself, except in some material or mental attainment. Were that glimpse only possible to all of us, we would lose our fear, back up our courage, and feel on a par with the biggest of them. But the trouble is that the man who has achieved large things seems to the average fellow in no way related to him. He looms up as a superman. When one has courage, all men and all tasks weigh exactly the same on the mental scales. What you can con-



*An Inspirational
Talk
for Automotive
Men*

By

F. M. Chase

(at left)

(Vice-President, Harry Moll Tires,
Inc., Denver, Colo.)

ceive you can do if you have the courage. And courage is yours; it belongs to you. It makes nothing of unseasonable weather and all the other reasons for not pushing to your limit. Courage lies in facing things four-square and it means standing up to your man.

It means staying with your job, because you know it is the job for you. Have you ever stopped to figure that almost anyone can get "sore," lay down or quit—and keep on quitting job after job, until he becomes a jobless bum—but that it takes a real man to stick? Eight or ten of our American railroad presidents were section foremen early in life. President Underwood of the Erie was a switchman. In the money world, Morgan, Hill and Harriman were small fry until they had silver in their top-knots. Lincoln was 54 when he wrote his Gettysburg speech; Woodrow Wilson was an obscure teacher at 50.

Few men enjoy big success until they pass the fiftieth milestone. No man, no matter what age, achieves success until he learns to grab hold, do good work, and hang on. Do the job a little better today than it was done yesterday. Forget distant pastures, and you have a chance.

That is all any thinking man will ask. You don't want charity. You don't want favors. You just want an even break. We all have that. The question is: Will you stick?

You can stick for you have will power. That is the faculty a man carries around under his hat that is

more powerful than all the engines ever invented. Will power is a man's horsepower. You have will power; I have will power; the laziest man in the world has it. The question is: Do we develop it by exercising it many times a day—in our work, in our leisure, our pleasures, our personal management of ourselves, the regulation of our habits? If we can develop our will power to a point where it works automatically, we can eliminate the "tough ones" like so many nine pins.

Honesty comes next. I can remember when honesty in business meant keeping within the law or out of jail. But today's business standards are higher than that. The big market is for honest, truthful men. There is no compromise with honesty. You are either honest or dishonest. If you are honest, you are fair, upright, fearless in expression in all your business dealings. Only you can tell whether you are in all things honest. Honesty

pays dividends, both in dollars and peace of mind.

Every man of us is shooting at a target called Success. Sales and the big rewards go to the man who knows, knows he knows, and why he knows, then has the courage to stand behind that knowledge and put the thing over.

Hand-Cuffing Cut-

This Automobile Supply House Renders It Harmless by Handling Good Nationally Advertised Merchandise, Furnishing Free Installation Service and an Effective System of Suggestive Display.

MELVIN C. SMITH, proprietor of Smith's Auto Supply, Seattle, Wash., is in business to make money; he gets no satisfaction in selling automobile accessories and supplies within a hairline of actual cost. Also he expects to be in business 10 years and perhaps 20 years from now, and hence refuses to sell "seconds" or inferior merchandise.

This may seem like a very matter-of-fact policy, and any high-class accessory merchant knows how difficult it is to adhere strictly to this common-sense business credo. The gyp dealer with off-color merchandise and cut-throat prices makes the endeavor anything but a bed of roses. Added to the perplexities of the independent dealer is the chain-store competition, and for good measure we might mention the hardware and department store that offer alluring "specials" in automobile accessories because they are merely side lines used for bait.

Close to the Smith's Auto Supply store is one of these "we-sell-for-less" merchants—here today and gone tomorrow. Within a block are a half dozen more—cheap stuff, low prices.

It's quite a problem to Smith, but he's been doing business at the old stand for eight years now, with a steadily increasing volume every year. In fact, a jobber friend told the writer that Smith is the outstanding accessory merchant of Seattle.

But it takes adroitness and ingenuity to effectively meet cut-price competition. Smith uses many potent tactics. Briefly they may be outlined as follows:

1. Strict adherence to a policy of handling only standard, nationally advertised goods.
2. Refusal to handle even a good advertised brand that may be found on the shelves of cut-price competitors.
3. A system of "silent salesmanship" that has increased volume 30 per cent.
4. Meeting price resistance with a thoroughly trained sales staff.
5. By the use of an installation service.
6. Carrying complete stocks to avoid the "just out"



alibi. This includes adequate supplies of staples and the latest wrinkle in novelties.

7. Catering to a special class of trade.

Perhaps nothing strikingly new can be said about Smith's attitude toward nationally advertised merchandise.

"An unexploited line may be good, but I'm too busy to be burdened with the responsibility of creating consumer acceptance for an unknown line," Smith declared. "The manufacturer who backs his product with his name and his advertising budget gets public attention and good-will. That relieves me of a lot of extra worry."

More significant is Smith's policy of refusing to handle a standard well-advertised line that is carried by a cut-throat competitor.

"That would put me in his class," he explains. "The customer shopping around would see the same line in both stores and might easily conclude that the entire stocks are more or less identical—except the price. This

Throat Competition



By
Mandus E. Bridston

"Silent salesman" arrangement in Smith's Auto Supply store, Seattle. Kindred items are displayed on the tables, making each group an exponent of suggestive salesmanship

display, but the mass effect achieved was confusing to the customer, Smith found. He saw so many things at once that he couldn't see anything well. So many things were within arm's reach that the customer failed to focus his attention on any one thing. Of course, this was an improvement over the forbidding privacy of the show case, but did not altogether satisfy Mr. Smith.

Then he conceived the idea of small tables, gayly decorated, each displaying a limited number of related items. These are called "feature tables" and are rearranged at least once a week. There are now 12 such small tables, the foremost located directly in front of the entrance to the store and extending to the rear.

For instance, when the writer visited the place, a "polish" table was spotlighted just inside the door. Purple and yellow crepe paper trimmings made the tables stand out like a traffic cop on a busy corner. Neatly arranged on the first table were such items as nickel polish, glass cleaner, body polish in various brands, lacquer and enamel, chamois, polish cloth, mitten duster, upholstery brush, soap, et cetera. These items were not crowded, but each suggested the other. A customer might want a nickel polish for a car-cleaning job. A glance would remind him of many kindred items that he would find helpful in dolling up his motor car.

There was a "grease" table featuring a jack, pump, tire chain, tire irons, grease fittings, alemites, et cetera, and of course a line of greases and oils. A greasing job suggests a jack, and a jack suggests tire accessories. It's all very simple, but these tables have proved to be potent as "silent salesmen."

Seat covers, tire covers, rugs and kindred items made another effective display. So also did a "dash board" table, windshield swipes and dashboard accessories such as cigarette lighters and ash trays. Spotlights made another good table, and a "Ford" table is a permanent fixture.

"I have estimated that these tables alone have increased sales 30 per cent," Smith tells you. "They serve several purposes. In the first place, it is a difficult matter so to train the sales people that they will invariably suggest related items to a customer. Sometimes another customer is waiting and the clerk just

would weaken my position, even though I do not openly attack such a competitor's class of merchandise."

However, one of the most effective weapons that Smith uses to magnet customers, despite bargain counter competition, is his system of silent salesmanship in the form of displays. During recent years the hardware stores, the drug stores and even the corner grocery have junked the glass show cases and ceiling-high shelves behind formidable counters and replaced them with open display counters spread out over the entire floor space. Customers can better see and examine an article. A famous merchant once said, "When a customer is persuaded to hold an article in his hand, it is half sold." Woolworth has made millions on this principle of salesmanship.

Smith has followed this new trend of display—but he has gone a step farther. At first he arranged large tables with inclining racks, running the length of the store. That made for accessibility and massiveness in

HAND-CUFFING CUT-THROAT COMPETITION

doesn't take the time to do an effective job of suggestive selling. Sometimes he forgets to mention the very thing that the customer would buy—if he remembered the need. These tables aim to minimize the importance of the human element. They automatically suggest and remind, even though not a word is spoken. Furthermore, they help the sales person to do effective suggestive selling. The items are right there before him. They can be picked up and explained and examined. Brand names are in open evidence to take full advantage of consumer advertising.

"Also, I find that if a customer is compelled to wait a minute or two, there are many things to interest him on these tables. He does not begin fretting with impatience, but picks up this and that from mere curiosity. He may not be interested in buying at all, but he finds something to occupy his mind while waiting his turn to be served."

Whenever possible, the mechanical devices displayed on these feature tables are hooked up to run to further flag attention. For instance, a windshield swipe is attached to a windshield covered with whiting, and hooked up to a battery. Action catches the eye. Likewise, horns, cigarette lighters and spotlights are ready to go. This same idea of mechanical motion is carried out in the window displays.

Always the price tag is boldly displayed—without apologies. That's where the real battle starts.

"I believe the first essential in meeting low-price competition is to sell your salesmen the right mental attitude toward the question of price," Smith emphasized. "If this is not accomplished, other efforts will fail. If the salesman isn't convinced without a shadow of a doubt that the goods he sells are a 'better buy' despite the higher cost, there is nothing he can say or do that will convince the customer. Merely repeating stock arguments won't do the trick. They lack the ring of sincerity. That means that the merchant must patiently and everlastingly analyze the product from the consumer's standpoint to his sales people. A salesman with a penny-wise, pound-foolish habit of thought can't effectively sell quality goods at higher prices. He himself favors the cheaper merchandise. If that attitude can't be changed, I let a salesman go, regardless of his many other qualities.

"It is sometimes a difficult matter to discover the mental workings of a sales clerk, and more difficult to control them. I learn a lot, however, from watching him make a sale. The inflection of his voice, perhaps, tells the story. If he says 'five dollars' in an off-hand, matter-of-fact tone, without a trace of apology or a question mark, it's a good sign that he knows his onions.

"To achieve this it is absolutely necessary to divorce the price thought from the salesmen's own pocketbook. The trouble with some salesmen is that they regard the question of price in the light of their own bank account. They do not realize that a \$25 purchase may not mean

THE Smith Auto Supply, Seattle, effectively meets cut-price competition with the following tactics:

1. Strict adherence to a policy of handling only standard, nationally advertised goods.
2. Refusal to handle brands that may be found on the shelves of cut-throat competitors.
3. A system of "silent salesmanship."
4. Meeting price resistance with a thoroughly trained sales staff.
5. By the use of an installation service.
6. Carrying complete stocks to avoid the "just out" alibi.
7. Catering to a special class of trade.

more to a customer than a 25-cent purchase means to themselves. To the man who needs the product and can use it advantageously, price is a secondary consideration. One salesman, realizing this will speak a careless 'twenty-five' without batting an eye, when the customer asks 'how much'; while another will pronounce a respectful, awed 'twenty-five dollars,' and the inflection of his voice tells plainer than words that he thinks that entirely too much to pay for such an article.

"If the purchase is considerable, and the question of a competitor's product and price is brought into the argument by a careful buyer, I find that it pays to break the item into component parts, and stress

the superiority of the different parts. It is not sufficient to use general terms."

Smith refuses to compete with cut-price competitors on a price basis, but he gives them a merry chase on service. He installs all accessories, such as spotlights, swipes and such, free of charge.

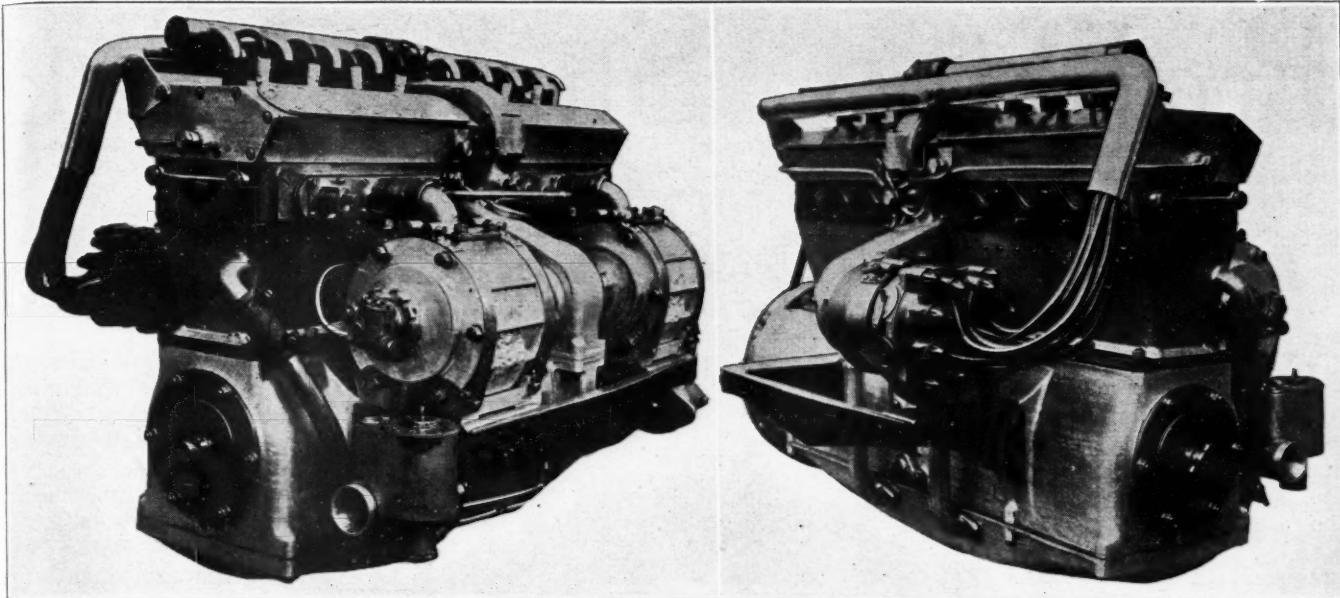
"This costs me very little time and money," Smith declared, "but it is a wonderful sales stimulant. I have a boy around the place that I pay \$18 a week. With the proper tools he can install most accessories, and otherwise make himself useful around the store.

Smith definitely goes after the quality trade with quality merchandise at fair prices. He doesn't cater to the hoi polloi, for oil and water don't mix. One class of trade may be as profitable as another, but it's fatal to try to reach both at one time. Smith, when he first started the accessory and supply business, carried a line of used parts, but dropped it when he discovered that it cheapened his place of business in the eyes of the better class of trade. It was a profitable line but he likes the other type of business better.

His trade knows that "Smith has it," whether staple or the newest wrinkle in a radiator cap. Though he likes quick turnover as much as anyone, he does not let his business suffer by letting his customers go elsewhere because of inadequate stocks. Though he scans the national magazines for the newest novelties, and orders a small lot pronto if it looks good, he does not let himself get caught with an over-supply of novelty merchandise. He wants to have a good number as soon as it comes out to vindicate his reputation of supplying every accessory demand but he figures that a three months' run on a novelty is about the limit. He stays within the limit. A one-order supply of novelties is generally a safe rule, he finds.

With these policies, Smith does not need to worry much about cut-price competition. He tries not to argue price. However, a prominently displayed signs speaks volumes:

"There never was a product made,
This fact you must confess,
But what some bird can make it worse,
And sell his stuff for less."



Salmson 67 cu. in. racing engine viewed from both sides

67 Cu. In. Straight-8 Racing Engine

*Built by Salmson of Paris, Develops 100 hp. at 5800 r.p.m.
and Will Turn Up to 8000 r.p.m. Gives Car a
Speed of About 125 m.p.h.*

By W. F. Bradley
(Motor Age European Correspondent)

SUPERCHARGED straight-eight racing engines of only 67 cu. in. piston displacement have been produced by the Salmson Automobile Co. of Paris and will be used in European track and road races during the coming year.

Salmson specializes in the production of stock cars of about 67 cu. in. displacement and for several years has been very prominent in racing events with cars of this size having a certain resemblance to the stock product. It is realized that the four-cylinder engine has reached the limit of its development, and the eight-cylinder models from designs of Engineer Petit, are intended to replace them.

Although no definite statement regarding output has been made, it is known that the engine has shown 100 hp. at 5800 r.p.m. and that it will turn up to 8000 r.p.m. The speed of the cars is believed to be in the neighborhood of 125 m.p.h. The cylinders, which have a bore and stroke of 49.9 by 70 mm. (1.95 by 2.75 in.), are in two castings of four, with a detachable cast-iron

head, carrying two valves per cylinder at an angle of 30 deg. from the vertical. The iron water jackets are cut away and replaced by sheet steel riveted jackets. The cylinder blocks are mounted on a barrel shaped aluminum crankcase to which an aluminum oil sump is attached.

The feature of this engine is the method of treating it as a double four, with the timing gear in the center and the accessories mounted symmetrically to left and right of this gear. The crankshaft is in two forgings, with a keyed taper joint between them, over which the accessories drive pinion is keyed.

This arrangement of a certain drive not only tends to minimize the effect of torsional vibration on the gears, but it has the further advantage of providing the maximum degree of accessibility for the various parts. The crankshaft is carried in ball bearings at both ends and also at each side of the central joint, while roller bearings are used between cylinders Nos.

(Turn to page 49, please)

Propeller Shaft Disk Brake for Cars

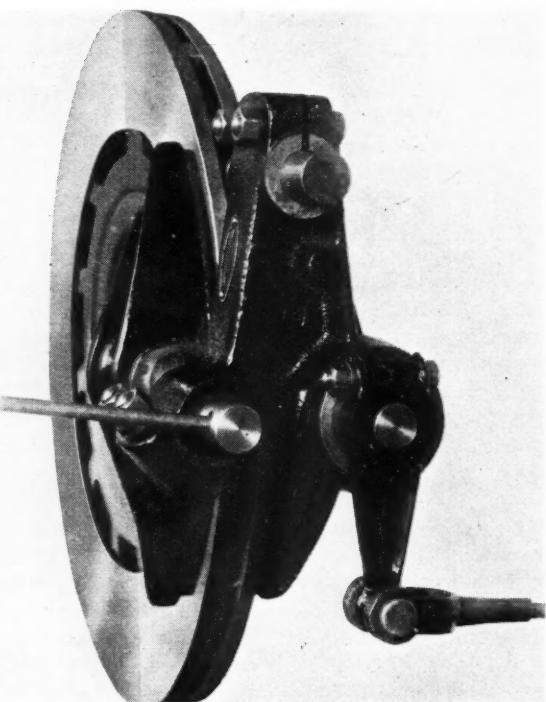
THE American Cable Co. of Bridgeport, Conn., has been manufacturing for some time a disk brake for mounting on the universal joint back of the transmission, which brake is now standard equipment on a considerable number of trucks. Recently a passenger car size of the same type has been brought out. Several illustrations of these brakes are shown herewith.

The disk of the passenger car type is made entirely of steel stampings $\frac{1}{4}$ in. thick. It comprises a spider and hub in one stamping and two rubbing disk stampings, the three being fastened together with rivets and so formed that there is air circulation between the disks. The assembly is secured between the universal joint and its flange. The parts of the propeller shaft pilot into the bore of the brake disk, so that concentricity of all parts is assured.

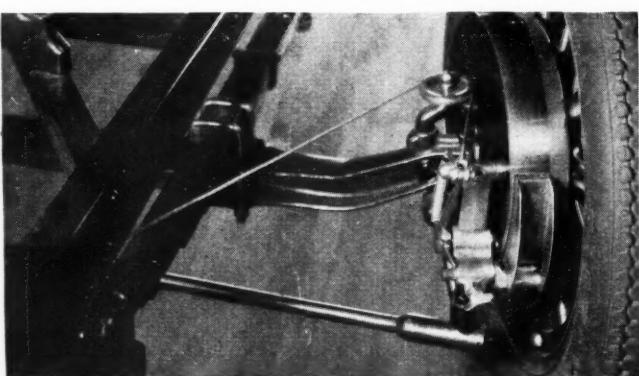
Another type of disk, which is made in 12, 14, 15 and 16 in. sizes, is made up of two drop forgings with radial ribs on their adjoining sides, these ribs acting as spacers and insuring ventilation of the disk. In this design the hub member is formed with lugs on its circumference while the annular disks have corresponding lugs on their inner edge, the parts being assembled by bolts.

When the brake is applied the disk is gripped by two brake shoes made of malleable iron and lined with fabric friction material. Each of the shoes is mounted on a crank of small throw, the two cranks being carried in the lower end of a link which is pivoted at its upper end on a bracket secured to

Mounts on Universal Joint Back of Transmission. Flexible Bolt New Feature of Tru-Lay Cables



Propeller shaft disk brake



How one user of "Tru-Lay" cable and "Tru-Loc" fittings has designed his front brake linkage

applied can be kept constant throughout the life of the linings. The lever on the crank which applies the shoes

to the disk usually extends upward. This has the advantage that it reduces the end thrust on the brake disk and on the shaft on which the latter is mounted, for if the hub at the free end of this lever were in line with the fulcrum of the link there would be no end thrust.

Among the advantages claimed for the disk brake are that it is of particularly compact design and that it cools well which makes it possible to de-

a cross - member of the frame or to the crankcase. One of the cranks is rigidly clamped in the link while the other is mounted in two ball bearings therein and has a lever secured to its end projecting from the link. The crank which is clamped in the link serves for adjusting purposes. In one design it is held by the friction due to the pressure exerted by two clamping bolts, while in another the projecting end of the crank is formed with a flat on it and a washer with a hole through it corresponding to the section of the shaft is passed over the shaft. This washer has radial serrations on its face which engage with similar serrations on the end of the hub on the link. When it is desired to adjust the brake, the clamping screws are loosened and the adjusting crank is turned until—with the pedal not far from the innermost position—the brake shoes contact with the disk. The clamp screws are then tightened again. With this means of adjustment it is unnecessary to adjust the linkage, and the position of the pedal when the brake is

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PROPELLER SHAFT DISK BRAKE FOR CARS

scend long hills on the brake without overheating and burning of the brake lining. The brake can be relined very easily, all that is necessary being to slip out the link pin, drop down the link, remove the cotter pins and slip off the shoes. In an emergency the operation of relining can be performed on the road. It is not necessary that the disk should run true, as the link suspension will take care of any running out.

If necessary to give sufficient brake capacity, two pairs of shoes can be fitted to apply to the same disk.

The American Cable Co. also manufacturers Tru-Lay cable for brake connection. This cable is made up either of single wires or of strands of which each contains a considerable number of wires. The peculiarity of the Tru-Lay cable consists in the fact that the single wires or strands are individually formed to shape before the cable is laid, hence they retain their position when the cable is cut. The cable ends or fittings are joined to the cable, by what is called a Tru-Loc. An axial hole is drilled into or through the hub of the fitting, of a diameter equal to the maximum diameter of the cable. The end of the cable is then inserted into this hole and the material of the hub is swaged down upon the cable by a hydraulic swaging process which causes the metal of the fitting to flow into the interstices between the individual wires of the cable, making a very secure joint.

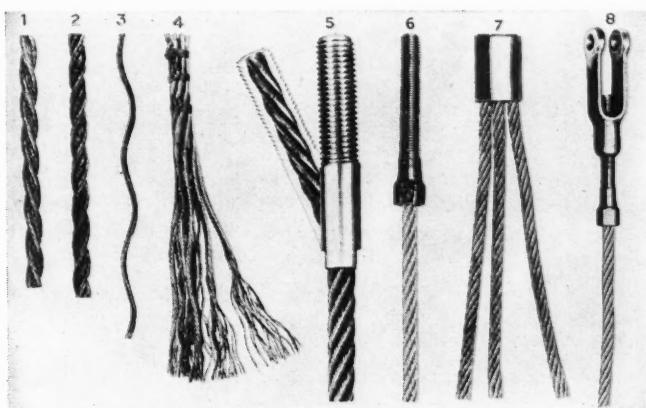
The effectiveness of the joint was recently demonstrated in a series of tests by Professor Huntly at the

Armour Institute of Technology at Chicago. In these tests a large number of cables of various sizes were loaded to the actual breaking point. In each case the complete breaking strength of the cable was secured, but in no case was there any slippage of the cable in the fitting.

The success of the new cable and fitting is attested by its adoption for various parts of the brake mechanism by Cadillac, La Salle, Dodge Brothers, Packard, Stearns-Knight and Studebaker among passenger car manufacturers and by Walker, A. C. F., American-LaFrance, Brockway, Gramm Motors, National, National-Howard, Sanford, Selden, Standard and Mack in the commercial vehicle field.

Some of these makers are using Tru-Lay cable and Tru-Loc fittings for the whole of the brake linkage; others use it for front brakes only and still others use the system in combination with other mechanical developments.

A recent development of the Tru-Lay cable is known as a flexible bolt. The central portion of this bolt consists of cable to which the head end of an ordinary bolt is swaged at one end and the threaded end at the other. So-called U bolts are also made, consisting of lengths of cable to which threaded shanks are swaged at both ends. These bolts are quite handy for assembling various parts on the chassis, as it is not necessary to have holes in exactly the right position in order to enter the bolt end. Body details, such as assist straps and robe rails, are also made up of Tru-Lay cable.



I and 2—Lengths of two different types of preformed cable made by the American Cable Co., each with every other strand removed. 3—Strand of preformed wire showing how it is shaped to the exact helical position it will occupy in the cable before assembly into rope. 4—How ordinary wire rope "explodes" when cut. 5—"Tru-Loc" fitting cut open to show how the metal grips the strands and wires in the cable. 6 and 8—Example of multiple rope fitting. 6 and 8—Threaded hexagon fitting which permits application of shackles, as shown, or turnbuckles, rods, etc.

The High Cost of Horse-Play

(Continued from page 33)

"up" on anything. A summary of his mental observations would read as follows:

"Let's see: propeller shaft is completely assembled, all adjustments made and every cotter pin and lock in place. Differential is assembled and likewise pinned and locked, ready to put in its carrier. Let's see—oh, yes, one of the bearings has a rough spot. Must get a new one, then I can go ahead and assemble the whole thing."

He went on with precision and exactness, confident of what he had already done and of what he still had to do, and above all, apparently ignorant of the presence of anyone else in the shop but himself.

A short time after the sum of money in Rudy's pay envelope resumed its usual "pre-lesson" amount, and his spirits had again risen to normal, the driver of a

small commercial car on which he was working, said to him:

"What's the difference between a Ford and a pair of dice?"

But right there Rudy silenced him.

"Listen, kid," he said, "I'm off that joke stuff during work hours. But you come over to my room tonight, and I'll spring a real one on you."

"I know the answer to that gag of yours," he told the truck driver that evening. "There is no difference between a Ford and a pair of dice. They both rattle and roll. But get this:

"When you want to crack a joke, how should you talk?"

The truck driver was stumped.

"Like a fish," answered Rudy. "Think it over, kid, think it over."

The Latest in Equipment for

Pressure Lubricating Unit

SPRINGS, brake rods, brake anchors, body joints and all of the many moving parts under a car which develop squeaks and rattles can be quickly and thoroughly lubricated with the new Binks No. 146 Pressure Lubricating Unit.

As will be seen, this Binks unit consists of a tank mounted on a pair of sturdy wheels. At the top of this tank is a pressure gage and control valve, by means of which the flow of the lubricant is controlled. The lubricants are drawn to the head of the tank and atomized before passing through the hose to the gun. A control valve is located on the handle of the spray



nozzle. The container is a heavy gage steel tank of 7-gal. capacity and is provided with a specially designed hand-removing filler plug which automatically releases the air pressure in the tank when the plug is being unscrewed. Air is supplied to the tank by attaching it to the chuck of any air line. The length of the nozzle is 24 in. and the unit comes complete with 15 ft. of special composition hose. The price is \$42 f.o.b. Chicago. The Binks Spray Equipment Co. is located at 3114-26 Carroll Ave. in that city.

Ring Compressor

THE "Slave Bracelet" design ring compressor is a new product of Stevens Walden-Worcester, Inc., of Worcester, Mass. By the removal of a link or two this tool can be adjusted to the smallest piston, while the addition of links makes it adaptable to the largest size. The thumb screw, which is attached to the end link quickly compresses the ring to a point where



the piston may be readily inserted in the cylinder. This is known as tool No. T-109, weighs 2 lb., and sells to dealers at a net price of \$1.75.

Screw Plate Set

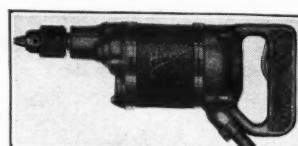
SEVEN of the most frequently required sizes of taps and dies used in the repairing of starters, generators, carburetors and other small units, are included in the No. R6 Keystone Die



and Screw Plate sets. These sizes include the following: 4-36, 6-32, 8-32, 10-24, 10-32, 12-24, 14-20. A tap wrench with a sliding T-handle and a stock for the dies is included in this set which comes in a strong wooden box. The price of this is \$10. It is made by the Keystone Reamer and Tool Co., Millersburg, Pa.

1/4-Inch Universal Drill

ADRILL designed for continuous service is the new universal drill made by the Hisey-Wolf Machine Co. of Cincinnati, Ohio. This drill is equipped with a ball-bearing-mounted Hisey motor, a removable gear on the ar-

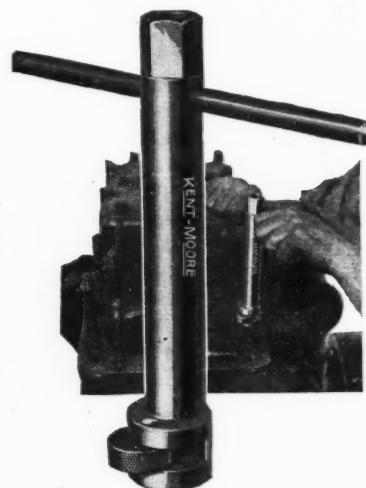


ture shaft; a compound gear, which is supported by bearings at each end; an oversize chuck spindle, which is auto-

matically lubricated through the gear case; brush holders mounted on a Bakelite yoke as a separate unit; automatic, quick-release type switch mounted in the end-grip handle. The price of this drill is \$45.

Stud Wrench

THIS stud wrench consists of a sleeve with a cross handle. At the lower end of the sleeve is an eccentric knurled wheel. The sleeve is placed over the stud to be removed or tightened and the eccentric wheel is brought in contact with the stud. The turning motion causes the knurled wheel to make a firm connection with



the stud, thus making it possible to turn it as desired. This stud wrench is a product of the Kent-Moore Organization, of Detroit and Kalamazoo.

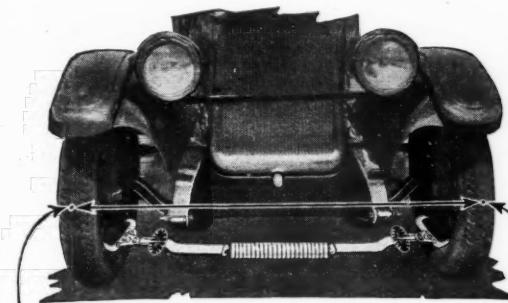
New Wheel Aligner

THE Bear Manufacturing Co. of Rock Island, Ill., is now offering to the automotive trade a new improved wheel aligner which eliminates guess-work and gives readings accurate to the sixteenth of an inch. This is known as Wheel Aligner No. 10.

The new aligner is equipped with a geared pointer which magnifies the reading to four times the accuracy of earlier models. This is extremely important in checking the measurements of pitch since more accurate comparative readings are now possible between the front wheels. Pitch is even more important than toe-in since the former is more frequently the cause of excessive tire wear and hard steering.

This aligner is equipped with curved abutment bars which reach around the

the Automotive Service Shop

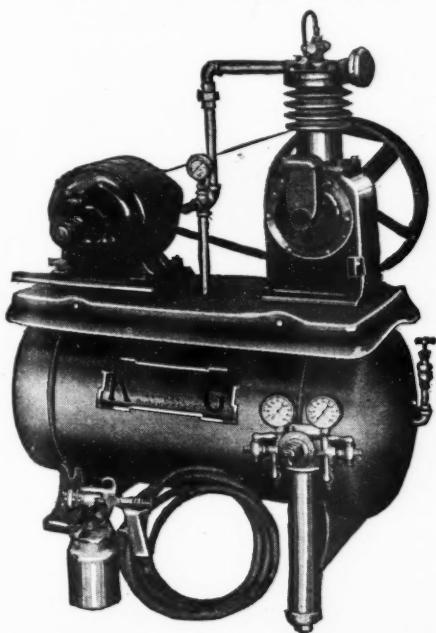


brake drums on either front or rear wheels and permit the measurements to be taken against the felloe for absolute accuracy. A special shoe is also furnished to be used on wire wheels where there is no felloe for the aligner to rest against.

The wheel aligner is the basic tool of the entire system of wheel and axle alignment since it is not only used in checking pitch and toe-in of both front and rear wheels, but in checking the tracking of the rear wheels to find a swung front or rear end, and in straightening bent or twisted axles.

Spray Equipment Outfit No. 5

FOR the automobile paint shop refinishing from six to ten cars per week, the Kellogg spray equipment outfit No. 5 is designed. It consists of Model EM 261X air compressor; type D DeVilbiss designed spray gun; suction feed quart capacity cup; type Z air transformer and 25 ft. $\frac{3}{8}$ in. air hose and connections. The compressor



high-speed auxiliary lifting pawl is mounted in the handle of the lifting lever and is operated by hand. This jack is easily operated in small spaces, such as between cars, under running boards, etc. It is manufactured by Ernest Holmes Co., Chattanooga, Tenn.

Aligning Reamers

PERFECT alignment with this reamer is assured by the spring-type collet which serves as a guide. This reamer comes in a variety of sizes and is of the expansion type. Consequently, it is particularly adapted for piston


pin fitting work. Reamers of this type are made by the Watervliet Tool Co. Inc., of Albany, N. Y.

of this outfit has a displacement of 8 cu. ft. per minute, giving enough air to keep up with the fastest workman. The air pressure is governed by the Kellogg pressure unloader and a 32-gal. tank gives plenty of reserve capacity for an air dusting gun. The price of the outfit is \$260.30, with 60 cycle, 220 volt, 2 or 3 phase motor; with 110-220 volt, 60 cycle, single phase motor—\$292.30, and with D.C. or 25 cycle motor, \$320.30. The Kellogg Mfg. Co. of Rochester, N. Y., is the maker of this product.

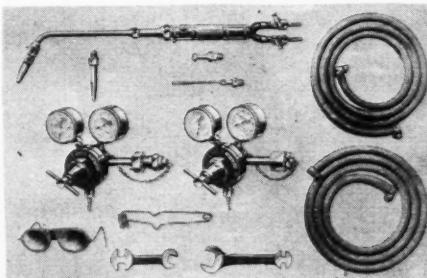
Cantilever Jack

THE new Holmes cantilever jack has a lifting capacity of 5000 lb. The combination of the cantilever principle with the special lifting rockers gives a wide range of action and permits very low and high positions. It drops to 6 in. and raises to 16 in. and lifts the car 8 in. off the ground. A

Three New Welding Outfits

E SPECIALLY to meet the demand of automobile repair shops and sheet metal shops for low-priced assemblies, three Prest-O-Weld welding outfits, designated as the Type W-101-A Auto Repair Outfit (here shown), the Type W-102-A General Purpose Outfit, and the Type W-102-B Welding Outfit, have been placed on the market by the Oxfeld Acetylene Co., 30 East Forty-second Street, New York City.

These outfits are made by the addition to the Prest-O-Weld line of two



small, two-gage regulators, Types R-10 and R-107, and two special blowpipe tips, one for heating and brazing and one for radiator soldering.

The Type W-101-A Auto Repair outfit is for the garage that has only an occasional welding job but needs a large-size blowpipe for frame straightening. For this purpose a No. 10 Tip is included which is also suitable for reasonably heavy welding operations. A No. 6 Tip is provided for every-day welding jobs. A special heating tip and a radiator soldering tip, which consume acetylene only, are designed for light heating, brazing and soldering operations. The radiator soldering tip enables the operator to solder the leaves of a radiator in places that would be inaccessible with any other type of tip.

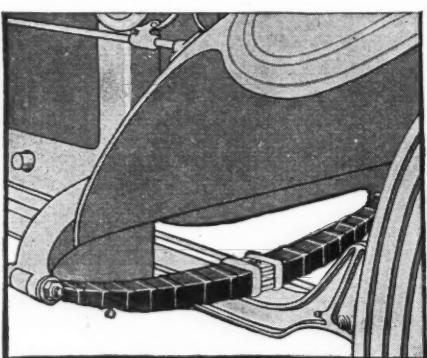
The Type W-102-A General Purpose Outfit is for any repair shop that wishes to employ the oxy-acetylene process in all its many applications—welding, decarbonizing, heating, soldering, brazing, lead burning and radiator repair. Five welding tips and a decarbonizing blowpipe, as well as the heating and radiator soldering tips, are included in this outfit.

The Type W-102-B Welding Outfit is recommended for auto body and fender work and for welding light and medium castings. By the addition of a cutting attachment any of these three outfits may be used for cutting wrought iron or steel.

The Newest in Accessories

Spring Protectors

METALLITE sleeves are spring protectors which keeps the spring supplied with lubricant and prevents moisture and dirt from working into them. Metallite sleeves are made of stainless, rustless metal, formed in sections which are joined with six-ply water and dust-proof movable joints, graduated in size to provide close-fitting, complete protection under all conditions and having sufficient strength



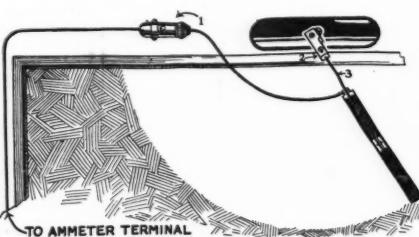
to force the spring leaves to move in alignment. This all-metal sleeve when applied provides a reservoir for the lubricant, being properly seated at each end to prevent leakage.

A special graphite lubricant is supplied with these sleeves and no attention is required except to refill the reservoir with graphite once or twice a year, depending upon the amount of driving done. Metallite sleeves are guaranteed for the life of any car and are not affected by steam or hot water washing. These sleeves are made by the Metallite Corp. of Akron, Ohio.

Windshield Cleaner

CROSTED snow, sleet and ice on the windshield of a car can be removed by means of the Burton Windshield Sleeter. This is a product manufactured by the Sleeter Company, Inc., Worcester, Mass.

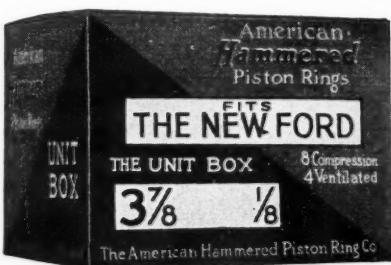
Sleeter warms the windshield, thus melting ice, snow or sleet. This device consists of an electric unit encased in aluminum and weighing less than 2 oz. It is covered with a soft, graphited asbestos material, which presses lightly against the glass as it travels. The Sleeter is attached in place of the inner service handle or extension of the windshield cleaner and is controlled by a switch placed at the left of the windshield cleaner mechanism. To clear the windshield from ice, snow or sleet, it is



simply necessary to turn the switch on and set the windshield cleaner in operation. Sleeter travels on the inside of the glass, warming the same area as that covered by the outer wiper. Also, this device prevents the formation of frost on the inside of the windshield.

Ford Ring Assortment

FOR the purpose of servicing the Model A Ford, the American Hammered Piston Ring Co. of Baltimore, Md., has put up a special unit box containing a complete set of rings. These rings include eight of the compression type and four of the ventilated variety,



the latter being used for oil control. All of these have the characteristic hammering in order to assure continuous and uniform tension.

New Ford Bumper

THE Biflex Ford ribbed-steel cushion bumper is the latest addition to the line of bumpers made by the Biflex Corp. of Waukegan, Ill. This is a quality bumper designed to harmonize with the new Ford car and yet made



to sell at \$17, the price including rear guards to match. The steel bars of this nickel-plated, parallel-bar type bumper are made of 1 1/2 in. stock. Complete mounting brackets and fittings are included.

Ray Day Piston

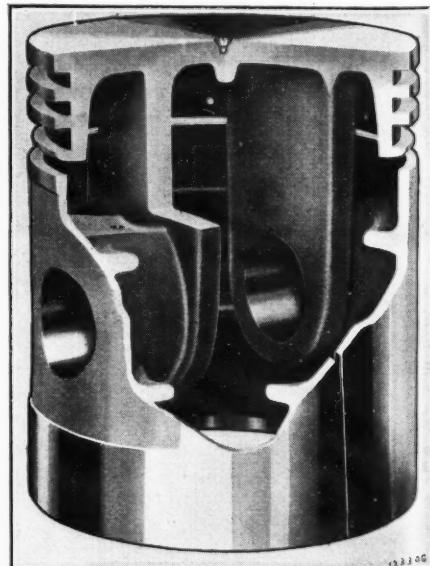
A NEW idea in design is incorporated in an aluminum alloy piston being offered the replacement trade by Ray Day Pistons, Inc., Seattle, Wash.

In principle the piston is claimed to have, through its design, the characteristic of providing full bearing surface on the skirt under all conditions of engine speed and heat. This is said to have been obtained by holding skirt expansion down to a minimum while also making it independent of expansion in the head, although only a single metal, the aluminum alloy casting, is used in its structure. The low skirt expansion produced is evidenced by the fact that the clearance recommended for the skirt runs around .002 to .0025 in. for the average piston.

In construction the connection between head and skirt is obtained by two supports projecting downward from the bottom side of the head, and spaced apart a distance equal to about one-third the diameter of the head. These supports at their lower end are integral with the inner end of the piston pin bosses. The latter are part of the skirt as in cast iron pistons, without intervening struts.

The skirt itself is otherwise completely detached from the head, being cut away during the machining operations. This complete cut around the skirt, together with the full cylindrical form of the skirt, is said to reduce oil consumption and prevent oil pumping.

As may be noted from the accompanying illustration, the skirt is provided with two circular reinforcing ribs.



Offered the Automotive Trade

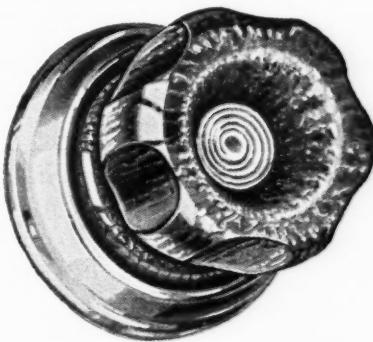
It is the correlation of the strength of these ribs with that of the vertical supports which is said to provide the low, even skirt expansion in this piston. If the head of the piston heats up, say to an expansion of about .012 in., the expansion between the supports is equal to about .004 in., the spacing being about one-third the head diameter. The action of the skirt ribs is to prevent the expansion of the skirt to this amount, preferably allowing the vertical supports to give slightly. By thus controlling the total skirt expansion, the problem of keeping the skirt round is easily solved, since under heat there is no reason why expansion should not be even, there being no tension on the skirt except that evenly distributed by the reinforcing ribs.

Another feature of the piston, obtained by this type of construction is that the load is transmitted vertically to and from the head with relatively even load distribution over the head, enabling light construction with additional metal above the minimum obtained placed only where it will be of greatest benefit in bettering heat conductivity. It is stated that temperatures at the local heat center of the piston are lower than those usually found in aluminum alloy pistons.

There are also other features provided by this type of design. From the illustration it will be noted that a shielded pocket is formed over each piston pin boss, providing lubrication to the pins, an oil hole being drilled through the bosses from these pockets. The ribs also prevent oil splashed up by the connecting rod lower end from being thrown on the cylinder wall through the slot between head and skirt. The design also enables the use of an effective side guide over the pin holes on the skirt, a feature not usually found in aluminum alloy pistons. Wearing qualities inherent in the metal itself should be very good, as it has a close grained structure.

Cigar Lighter

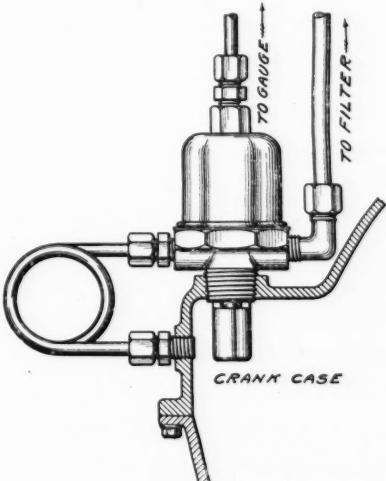
PASS-A-LITE is a cigar lighter with a removable head which, when heated, may be passed freely around the car without any wires attached to it. This is one of the newest products announced by the Stewart-Warner Speedometer Corp., of Chicago. The heat is generated in the heating element by current from the battery in the car. The



lighter is installed on the dash through a single small hole. By depressing the heating bowl in its socket, contact is made and the element is brought to a bright red glow in a few seconds. The element will retain its heat for a sufficient length of time to light several cigars or cigarettes. The lighting bowl is constructed of an attractive red and black mottled material which is unaffected by heat. The mounting socket is furnished in polished nickel. This accessory sells for \$3.

Dash Oil Viscosity Meter

BY means of the Viscometer recently developed by the Automatic Appliance Co. of St. Louis, the driver of a car knows at all times how the oil in his engine is standing up. The dial of the Viscometer is mounted on the dash of the car and indicates the viscosity or body of the oil. The mechanism that actuates the dial is mounted

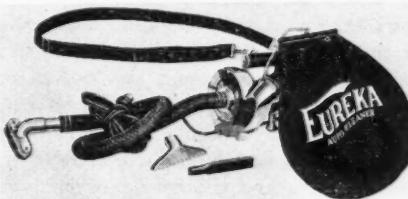


on the engine and connected to the crankcase and also to the filter of the car. The installation of this device in connection with an oil filter, in addition to indicating the body of the oil, also gives warning of any irregular functioning of the lubrication system.

New Vacuum Cleaner

THE Eureka Vacuum Cleaner Company of Detroit, Mich., has announced a new product, the Eureka Auto Cleaner. The new device is designed for cleaning automobile upholstery, carpets, and tops, and it is expected that it will have considerable demand among garage and filling station buyers as well as private automobile owners.

The cleaner has been designed especially to reach spots that are inaccessible and hard to get to with vacuum cleaners of the ordinary type. Although remarkably light and compact



for easy carrying and operation, the Eureka Vacuum Cleaner is identical in suction and cleaning power with the new Eureka Model 10, and is equally rugged in construction. There is a special grip handle and carrying strap, which enables the operator to easily carry in one hand or sling it over the shoulder. Equipment includes a five-foot hose with cleaning attachments, among them a new, long-haired brush specially adapted to cleaning fabrics. The price is \$39.50.

Distributor Cover

A RUBBER distributor cover designed to protect the distributor from moisture and dirt is made by Joseph Esserman, 243 West 55th St., New York City. This distributor cover is made of red rubber and is oil and



heat resisting. The price for the four or six-cylinder type is \$1, while the eight-cylinder style sells for \$1.25.

READERS' CLEARING HOUSE

Questions Answered By C. Edward Packer

Why the Rear Axle Spring Bearing?

Where the cantilever spring suspension is used on automobiles why is it that the springs are never fastened rigidly to the rear axle? Wouldn't they work just as satisfactorily if rigidly fastened as when pivoted, when a torque arm is used? How about without a torque arm and using the Hotchkiss drive? —Howard Wilson, Room 310 Municipal Bldg., Washington, D. C.

IT is necessary to have a bearing to carry the rear axle at the rear of a cantilever spring. The reason for this is that the radius on which the spring works is different from the radius on which the torque tube or torque arm works. As a consequence there is a difference in motion between the rear axle housing and the spring of the car. This imparts a twisting or turning action in the bearing. If it were not for this bearing the spring action of the car would be cramped and undue strains would be imposed on the spring leaves. On cars without a torque arm and in which the Hotchkiss drive is used, it is absolutely necessary to have the rear axle housing rigidly attached to the spring. The reason for this is that the axle housing tends to rotate both when the car is being driven and when applying the brakes. To prevent it from rotating it is obviously necessary to attach it securely to the spring.

Oil Leaks From Generator

I am having trouble with oil coming out of the generator on a new Standard Six Buick. I had this generator off to determine what caused the leak and found everything all right. The oil ring at the timing gear end is placed with the crimped edge toward the gear. Next to the armature it has an oil thread. The gasket ahead of this thread is tight. The oil return hole is open. Please tell me how to stop this leak.—C. M. B. Knobeloch, 611 Tenth St., Tell City, Ind.

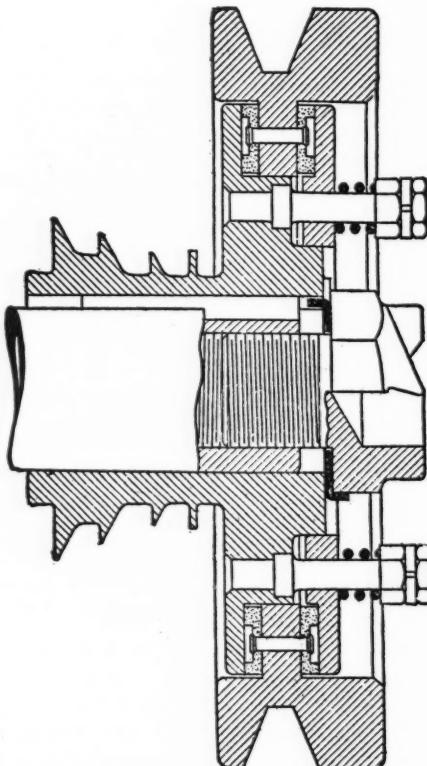
YOU will find that the oil slinger is visible through a notch in the bracket in the front of the generator. You will also notice that this bracket is cut part way down. Oil accumulates in this bracket and works back into the generator. To reduce the amount of oil that accumulates and consequently the amount of oil that the slinger throws, you should drill a 3/16 in. hole in the front bracket right in line with the oil slinger and at such a height

that the level of the oil in the bracket will just touch the bottom of the oil slinger.

Servicing the Lanchester Damper

Please give me complete details of the Lanchester damper used on Reo cars. What is necessary for their up-keep; do they need any attention, and if so, what?—Otto Huber, 19 E. Miner Ave., Stockton, Calif.

PRACTICALLY the only service required on the Lanchester damper is to keep the tension on the disks as shown in the illustration, correct. This is done by tightening or loosening the nut at the front of the damper. This tension is adjusted by wrapping a rope around the outer circumference and then drawing on it, measuring with a



spring-balance scale the amount of tension required to make the damper slip. From the car manufacturer you can get the exact amount that this should be. This amount varies in practically every make and model engine, but the manufacturer will be glad to supply this information.

Eccentric Commutator Causes This

I have come to you again for information. This time my problem is a Buick generator. It charges fine when the engine is running slowly or under approximately 1000 r.p.m., but if the engine is speeded up faster than that the generator will not charge. Can you offer any suggestion as to what might be the matter with this? The brushes are new and well fit and the commutator is clean and smooth. The generator is on a Buick four, 1922 model.—Wesley Tenbrook, Glenwood Springs, Colo.

WE suspect that your commutator is eccentric and that it will be necessary to remove the armature and turn it in a lathe so that it will be perfectly true. You will appreciate that even though the commutator may be smooth and the brushes new, that if the commutator is slightly out of round it will throw the brushes out of contact at high speed.

What is Your Solution?

We have two Dodge cars. Both have been reground, one to .020 oversize and the other to .040 oversize. The .040 oversize job never knocks at any time, whether it has carbon or not and this engine has but one cylinder head gasket. The other engine which is refinished to .020 oversize, with or without carbon knobs badly when hot. This engine has three gaskets. This seems to be a fuel knock. We have checked everything and both engines check the same.—Peoria Subscriber.

WE will take your word for it that these engines are both in tip-top shape. That being the case there is about one possibility, and that is that the knock is caused by pre-ignition. This may be the result of a thin edge of cylinder head gasket projecting into the combustion chamber. Under the influence of combustion plus the heat of compression this may become and remain incandescent. Naturally this would set off the charge before the pistons had reached top dead center and would be the cause of the knock that you refer to. Similarly a spark plug with a thin electrode might do this. We would suggest that you try some high-compression or aviation style plugs in this engine to see if this overcomes your trouble. MOTOR AGE readers who have an idea as to what this problem might be are invited to submit their suggestions.

Another possibility in this job is that the cylinder block of the engine that is knocking is coated in the water

[READERS' CLEARING HOUSE]

jacket with a lime deposit. This would prevent the heat of combustion from being dissipated by the water. As a result the interior of the engine would become unduly hot but at the same time the job would not appear to be hot running for the reason that the heat would not be transmitted to the water and consequently there would be no indication of boiling. Such a lime deposit can be removed by placing about one pint of muriatic acid in the cooling system and running the engine for about 30 minutes. It should then be drained out and flushed with a soda solution to neutralize any acid that might remain. This should then be followed up by flushing with clear water.

Cole Oil Problem

I have a Cole V-8 with oil pump trouble, in that the pressure does not exceed 10 lb. at high speed. I would like to know how to increase the pressure.—Mixon Bros. Garage, Runge, Texas.

THE housing containing the pressure-adjusting valve is located on the left side of the engine at the front end. A cap screw extends from the cap on the housing containing the valve. This cap screw is held with a lock nut. To increase the oil pressure for any given engine speed loosen the lock nut and screw in on the cap screw. With the engine running at fairly high speed, pressure should be between 15 and 20 lb. This adjustment should be made only when the engine and oil are thoroughly heated.

Oil Leaking and Pumping Problems

I have a Chrysler 70. I am having trouble with the back main bearing leaking oil. The bearing is tight and I have installed the oil pipe. I have also drilled the bearings as the factory instructed, but it still throws out oil at any speed over 35 miles an hour.—Joseph Schmitz, McCook, Neb.

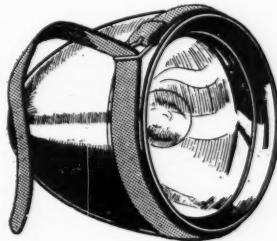
WHAT you need on this car to prevent oil from coming out of the rear main bearings is the new style of breather type inspection cover to go on the top of the transmission. You should be able to get this through any Chrysler branch, or directly from the factory.

We have a Chrysler 70 that burns lots of oil. I have plugged the oil holes in the rods and that made no difference. I also installed new rings. The pistons are tight. I have no oil pan leak. This car is a 1927 model and has been driven 9500 miles. What can we do to prevent this car from burning so much oil?

Saying that your pistons are tight puts us at a disadvantage in trying to help you on this problem, as "tight" is rather vague. Of course if they are uniformly tight throughout the entire length of the cylinder bore that would indicate that your bore is reasonably

SHOP KINKS
Ideas that have proved useful

TO remove headlight rims that are stuck and difficult to handle, I use a long strap. I put the strap around the rim, as shown, and pull on the free end.—J. J. Knaak, 405 Vine St., Peabody, Kan.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

true. It would be much better to check up the bores in this car with a dial gage and if there is any variation either from top to bottom or from side to side in excess of .003 in. we would suggest that you have this corrected before proceeding with your work. Oil pumping on this model is not chronic and we believe that if your cylinder walls are in good shape that the new rings would cure the trouble, provided of course, the rings are not loose up and down in the pistons. Any up-and-down motion of the rings in the piston ring groove will cause oil pumping and if these rings are loose there is nothing to do but put in new pistons.

A Dodge-Ford Combination

On page 47 of the Feb. 23, 1928, issue of MOTOR AGE we asked for suggestions on combining the engine or front end of a Dodge with the worm drive rear axle of a Ford truck.

As usual, MOTOR AGE readers came through in fine shape. We thank the following for their help:

Earl D. Stanley, Dohlund Garage; C. L. Condit, Mucoiarone's Garage; A. O. Hamilton, W. E. Throgmorton, California Hot Springs Garage.

We also thank those who wrote directly to Wilhelm's Tire & Service Station, Gillette, Wyo., as these people originally asked the question.

While a number of methods were suggested, the following was suggested by

several MOTOR AGE readers and seems quite practical:

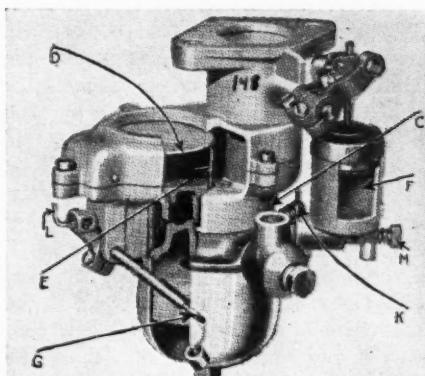
Cut the Dodge frame in two about 2 ft. back of the rear engine support and cut the Ford about 1 ft. ahead of the rear engine hanger. In doing this work one should measure accurately so that after splicing these two frames together the rear end of the Dodge engine and the front end of the Ford driveshaft will be the proper distance apart. By watching this point it is unnecessary to shorten or lengthen the driveshaft. The driveshaft and universal must then be machined to fit, the job requiring some mechanical ability and ingenuity on the part of the mechanic doing the work.

In connection with this change-over, it is necessary to use external brakes which can be purchased as an accessory for the Ford truck.

Johnson Carburetor Adjustments

Please give the proper way to set the Johnson carburetor.—Illinois Subscriber.

BEFORE attempting any carburetor adjustment be sure that your compression is uniform and that your ignition is in good condition. Then run the engine until it is thoroughly heated and the entire cooling system is hot. The high speed adjustment is shown at K. This should be approximately two turns open from its seat for a correct mixture with a regular fuel. When using high test fuel the adjustment should not be over 1½ turns open. Turn this adjustment clockwise to lean the mixture and counter-clockwise for a richer mixture. The idling adjustment is shown at L. Turning this clockwise enriches the mixture and counter-clockwise makes the mixture leaner. This adjustment



is for idling only and it varies the tension of the spring controlling the air valve D.

The accelerating pump adjustment is M. To reduce the effect of pump F, turn screw M counter-clockwise. Turning it clockwise gives a richer accelerating mixture.

[READERS' CLEARING HOUSE]

How to Charge Ford Magneto

As a reader of MOTOR AGE would you kindly let me know the method of recharging Ford magneto in a car with storage battery?—H. V. Curtis, Richland, Ia.

SUCCESSFUL recharging of magnets in a Ford magneto depends primarily on having the engine properly set so that the magnets are properly located with respect to the winding. This requires the use of a compass which should be carefully checked away from all machinery to see which end of it points toward the north. This end we will call the north pole. Now disconnect all wires from the magneto terminal and remove the slanting cover on top of the transmission. It is also well to take out the spark plugs so that the engine can be turned easily without interference from the compression. Now turn the engine until the brass studs which hold the magneto on and which can be seen at the back of the flywheel by looking through the slanting door opening are so located that one is at the right of the center of the car as much as another is at the left. In other words, two of these brass studs must be straddling the center of the car.

Now take the compass and hold it 2 in. back of the magneto terminal and 1½ in. to the left and see if the north end of the needle points toward the radiator in the car. If it points the other way have some one turn the crank so that the flywheel turns the distance of one brass stud. The compass should now point with its north end toward the radiator. Now take either two 12-volt batteries well charged or four 6-volt batteries and connect them in series, that is, in a string with the plus end of one connected to the minus end of another. A 32-volt farm lighting battery may also be used if one is available. Now connect the positive end of this string of batteries with a heavy wire, the copper part of the wire being ½ inch in diameter if possible, to the magneto terminal.

A similar heavy wire should be connected to the negative end of this string of batteries and should be flashed 15 or 20 times against the frame of the car. It is essential that this connection be quickly made and broken as the current is so heavy that the insulation of the coils may be damaged if the connection is left on for any length of time. To do a really good job the starting crank should be turned one quarter turn and the compass again used to check the flywheel position and the flashing operation repeated.

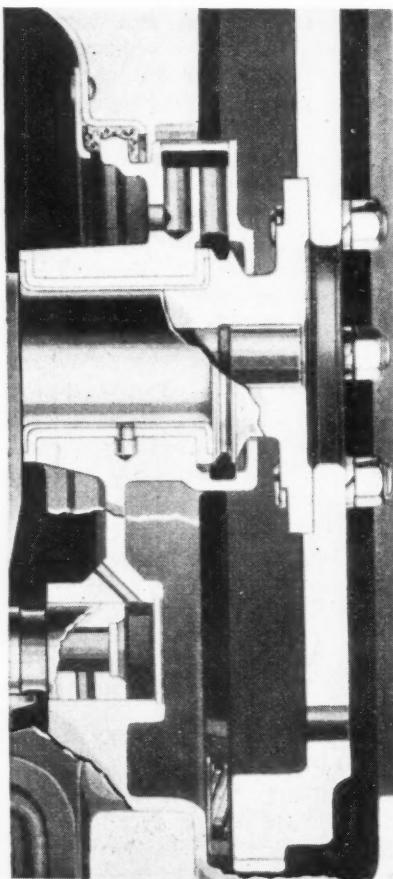
This should be done at every quarter turn of the flywheel for best results.

The advantage of repeating the process every 90 degrees is due to the fact that the iron plate supporting the coils has a certain amount of spring to it, so that the magnets at the bottom of the flywheel become slightly more magnetized than those at the top and the process is repeated in order to give all the magnets a chance to become as strong as possible. This process will also burn out any small shorts in the coils.

Eliminating Rear Main Bearing Oil Leak

I have a 1927 Chrysler 70 and I am bothered about the back bearing leaking oil. It will leak at any speed. I have tried many ways of fixing it, but with no improvement. I have installed an oil pipe put out by the Chrysler factory and also drilled the bearing as the factory said to do and put a breather on top of the clutch plate and had the crankshaft trued and the bearing cap checked. I also grooved the lower half of the bearing to drain the oil to the pan. I have had some other men beside Chrysler men look at this car and they all say the bearings and cap are O.K. I would be glad if you could give me any information that will help stop this oil leak.—J. W. Nutt and E. Sliger, McCook, Neb.

AS you have checked the main bearing up very carefully, we are of the opinion that your real trouble is caused by the rear camshaft bearing. We are showing a cross-sectional illustration of the rear main and rear



camshaft bearing. You will appreciate that if the camshaft rear bearing plug is not in place or is not tight, that the oil will leak from this point instead of draining into the crankcase. It will appear then that the rear main bearing is leaking when, in reality, that is not the case. Usually rear main bearing oil leaks are most pronounced at medium to high engine speed. As you say that this leaks at all speeds, we are much inclined to believe that the oil is coming from the rear of the camshaft. If that is not the case it would be worth your while to put an extension on the oil return drain pipe which you have added to the rear bearing cap and bring the outlet of this extension very close to the oil pump intake. This will effectually drain any surplus oil from the rear main bearing.

Spits on the Road

We have a 1926 Model Buick Standard Six with 3½-in. bore. This car will spit back through the carburetor if driven any faster than 45 m.p.h. steadily. It can be put up to 60 m.p.h. but after it gets up that high it will start to slow down 10 m.p.h. before starting to spit. Then it keeps spitting or popping in the carburetor and will not go any faster. If let up a while then again it will speed up a little higher, about 50 or 55. The gas line is open, the vacuum tank is clean and all screens in the carburetor and vacuum are clean. A new top was put on the vacuum tank, without result. A new spray nozzle was tried in the carburetor, but this did not help. A new distributor cap and breaker point was just put in and the valves ground, and we have also installed a new set of plugs.

This car has had added to it a crankcase ventilator and thermostat in the radiator. Both standard Buick equipment. The trouble seems to be gas but also seems as though when it gets hot it affects it, for at first start it will not act as it does after becoming thoroughly heated.—Illinois Subscriber.

YOUR trouble is probably due to an air leak in the riser tube above the carburetor. It is possible that the exhaust gases have burned or pitted this tube, or that the tube has cracked. As a consequence, when it becomes heated, this crack may open up thus permitting engine to draw the burnt gases in with the incoming mixture. This would weaken each charge and reduce the speed of the car accordingly.

Another possibility is that the condenser is loose and, as a consequence your spark is faulty. We would suggest that you take off the distributor cap and check up on this condition. Tightening the little screw that is on the outer edge of the breaker housing will tighten this condenser.

At the same time it would be well to clean the breaker points, square them up, and space them accurately. Also see that the moving point is free and that the spring is in good condition.

READERS' CLEARING HOUSE

Legal Queries on Automotive Topics

Model Misrepresentation is Suit Basis

As a subscriber of your magazine, I would like to ask you the following question:

A factory branch in Chicago sold me a used car and the salesman stated it was a 1925 model, also the bill of sale calls for model 1925. Trading the car in, I was told that the car was built in 1924, which is a difference from \$700—I paid \$1,350—and allowance would be \$250 for the 1924 model, and if it were a 1925 model, as the bill of sale calls for, the allowance for trade-in would be \$950. The car was purchased last August.

Asking the factory branch about the situation, the following wire is what I received:

"Used car you purchased of us was delivered new in 1924. This model came out in September, 1923. Sold all through 1924 and early part 1925. We do not make yearly models and cars are never sold by years."—John H. Mohnen, Detroit, Mich.

If you got the identical car you purchased after examination, then a mistake in the written description would not matter.

But if the car was represented as a model which was worth more than the model you received, and this representation was material in securing the sale to you, then you have an action for damages, being the difference between the value of the car received and the value of the model represented, of the same wear and tear, etc.

The telegram you enclose indicates a dispute as to the facts.

Charge It Off to Experience

We are running a repair shop and did a job for a man and guaranteed our work. When he came after the car, we gave him the bill and he paid part of it and did not kick on the bill. He said he was short of cash and asked for a little time on the balance. We gave it to him. Now he has traded the car off and refuses to pay the balance as he claims to have had the job done over again but won't say who did the job. Says we can sue him if we want to. What would you advise? The balance is only \$10.

This same fellow lives here in Chicago and bought Indiana license to get out of buying city license. So you see what sort of a man we are dealing with. What is the penalty of buying license in another state by using another's address?—Chicago Reader.

If you filed a lien claim within the 60-day period from the completion of the repairs, the lien would attach to the car in the hands of the purchaser. Notice of such lien to the purchaser would secure your money, as all expense of sale would come from proceeds.

But if you have no lien, you can sue in justice court at small cost. However, this is bad business throwing good money after bad unless you know the party is worth a judgment above his exemptions.

From what you state, it appears that the best policy would be to charge this loss to experience.

One may register his car in any or all states if he cares.

67 Cu. In. Straight-8 Racing Engine

(Continued from page 39)

2 and 3 and Nos. 6 and 7. The connecting rods are mounted on the shaft with roller bearings. The pistons are magnesium forgings carrying three compression rings and one scraper ring.

A train of spur pinions drives the overhead camshafts. By reason of the arrangement of two separate blocks of cylinders and central drive, each camshaft is in two parts, with an elastic coupling allowing for a slight amount of relative movement. Either half can be dismounted without disturbing the other.

The camshafts operate the valves through inverted steel pistons moving in bronze guides in the camshaft housing, thus eliminating all side thrust on the valve stems. These pistons are positively returned by means of cams on the shaft; thus the valve springs merely have to assure the seating of the valve, without having any of the load of the follower imposed on them. The four housings containing the valve gear are accessibly placed and can be separately dismounted.

Mounted on the right-hand crankcase hangers are two Cozette blowers, the left-hand one delivering mixture to the four forward cylinders and the right-hand one to the rear group. At present the blowers run at slightly less than engine speed, but the design has been laid out so that the speed ratio can be readily changed.

The carburetors are also Cozette make, each one being placed in an accessible position to one side of the blower and connected up to the blower intake, which is on the under face of the aluminum casting. The intake manifold is integral with the cylinders, and, of course, separate for the two blocks, although connected by a by-pass forming an equalizer. There is a pressure relief valve on each manifold. Gasoline is fed to a

gravity tank on the cowl by pressure from the blowers.

Immediately under the blower pinion is the water pump, which delivers water to the lowest point at the outer ends of the cylinder blocks. The flow is then upward and toward the center with an outlet from each cylinder to a common collector connecting to the radiator. Lubrication is of the dry sump type.

The magneto is manufactured by the Salmson company. It supplies current to eight plugs mounted vertically in the cylinder head. Provision is made for driving a distributor off the left-hand side of the magneto pinion shaft, if generator and battery ignition is used. Up to the present the engine has run on a magneto only.

To insulate the engine against weaving of the side frame members, a special type of two-point attachment has been adopted. There are two crankcase hangers on each side of the aluminum casting, and to each of these is bolted a forged bracket. The two brackets on each side are united by an inverted L-section side rail, which latter is carried on the chassis side rails and secured to them by two central bolts. The arrangement gives all the advantages of a complete three-point support sub-frame with considerably less weight. The chassis side rails are channel section, with ash filling.

Engine, clutch and transmission form a unit mounted in a chassis showing no great departure from standard practice. Single seater bodies are fitted, these being barrel-shaped and inclosing the driveshaft, shock absorbers and rear axle. They have internal hoops giving sufficient rigidity to protect the driver in case the car rolls over. Whether a differential is fitted depends upon the nature of the race in which the car takes part.



Sweet Climbing Gentians, Get This Compliment!

OMAHA, NEB.—I shall appreciate any information you can give me on this car as I don't want to spend a lot of money and get no results. I have read a lot of your advice in the Clearing House and what I have used has been so good that it prompts me to write this letter.

I have been associated in the service department of quality cars for 15 years, and it is these departments in the MOTOR AGE that really teach the service men the game, and not the factory. I surely hope these departments never cease while I am in the service work.—L. H. H.

Tie a Can on a Pussy Cat's Tail

ONEIDA, TENN.—Dear MOTOR AGE Photographer, what do you do to make all the gentlemen pictured in MOTOR AGE smile? I'd like to have that kind of a photograph of my husband. He runs his service station all by himself.—Mrs. B. E. A.

M-s-s That M-i-s-s-e-d

CILFON, MO.—I'm through with MOTOR AGE. Kindly stop sending it to me. I have sent you just as good



manuscripts as any you have printed, but I have not seen mine in yet.—L. M. C.

Among His Assets

BROOLEN, MINN.—I do repair work and your valuable paper is a great help to me.—Daniel G. De Kok.

LETTERS to the editor from those whose "attention has been called"; from those who point with pride and those who view with alarm, from those who are easy to please and those who are hard to please; from those who are happy when they find a good thing and those who are happier when they find something they consider not so good; from those who boast and those who knock; from those who see the doughnut and those who see the hole; in other words, Dear Subscriber, from you and you and you—as well as from the man who borrows your copy of MOTOR AGE or reads it over your shoulder.

Sextette from Lucia—How's That for Jazz?

NASHVILLE, TENN.—Your caption writer (unless you have a high-sounding name for him) surely has peped up the news. We like it lots. Now, please, Mr. Purrs and Pings Editor, give us a jazzy heading to this.—Lane & Kohl.

This Looks Like a Life Membership

LANARK, ILL.—I can not get along without MOTOR AGE.—Clyde Wingerd.

Pipe Another in This Very Issue

PORTSMOUTH, N. H.—It sure was a treat to read the Campbell and Lockhart racing car descriptions in your valued magazine. It's what I call a good dose of paregoric for the belly-aching racing fans.—B. B.

Here It Is!

BOISE, IDAHO—So Mr. Kennedy of Chicago says the Clearing House page cannot be beat. Well, tell him for me "so can't the Purrs and Pings page." Especially after I see this there.—D. Y. Case.

Aged Merchant Succumbs to Wiles of M. A.

LOUISVILLE, KY.—Your magazine is purty good, I reckon. I've been running my business for nigh onto 30 years without the help of any periodicals. I don't calculate I'd have had much more money now if I had made more. But, goldarn it, some fool has been leaving his MOTOR AGE in here for me to read and now he don't come back any more. I don't hold much with books and magazines, but I sorta got accustomed to that MOTOR AGE. Well, here's my three bucks. I hope you're satisfied.—Chas. McDaniel.

Nothing Bootleg About Our Legal Department

CHICAGO, ILL.—Your answers to legal questions are very interesting and have been of a great assistance to us. The majority of the problems as set forth in your magazine are at some time the problems of every garage owner. You have put us on the right track numerous times.—Quick Service Station.

Mr. Fortune's Magnet

CILFON FORGE, VA.—I do not believe that there can be another book that can take the place of MOTOR



AGE. I have gotten very many valuable things out of it.—W. H. Fortune.

Have Pity on the Staff, Kind Sir

PHILADELPHIA, PA.—MOTOR AGE is glorious. I only wish it would come every day instead of every week.—D. M. Hastings.

Prices, Weights and Equipment of Current Passenger Car Models

Important Changes in Specifications and Price Tables since last issue:

CHANDLER

DURANT
KISSEL
“White Eagle”

OVERLAND

**STEARNS-KNIGHT
STUTZ
WILLYS-KNIGHT**

KEY TO SYMBOLS:

- A—Wood wheels with spare.
- a—Wood wheels.
- B—Wire wheels with spare.
- b—Wire wheels.
- C—Optional wheels with spare.
- c—Type of wheels optional.

- D—Disk wheels with spare.
- d—Disk wheels.
- e—Front and rear bumpers.
- f—Front bumper.
- g—Shock absorbers or snubbers.
- h—Automatic windshield wiper.

KEY TO SYMBOLS.

- i—Trunk and trunk rack.
- j—Trunk rack, no trunk.
- k—Spare tire.
- l—Spare tire lock.
- m—Engine heat indicator.
- n—Dash gasoline gauge.

- Car heater.
- p—Cigar lighter.
- r—Rear traffic signal.
- s—Spotlight.
- t—Vanity and smoking set.
- u—Smoking set.

- v—Vanity set
- w—Windshield wings
- x—Clock.
- *—Overall length.
- §—Prices on application

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Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment
"Special"					PEERLESS "6-60"					ROAMER "8-78"					"Commander"				
4p. Roadster....	1225	2	2980	Dghmr	2-4p. Roadster....	\$1195	2	2600	deghlmnr	2p. Roadster....	\$1595	2	3450		4p. Sp. Roadster..	1695	2	3333	aeghmnr
5p. Touring....	1135	4	2980	Dghmr	5p. Phaeton....	1195	4	2765	aghilmnrw	2p. Coupe.....	1750	2	3225		3p. Bus. Coupe...	1495	2	3500	aghmnar
2-4p. Cabriolet...	1290	4	3070	Dghmr	2-4p. C'pe Rdstr.	1295	4	2725	deghlmnr	5p. Sedan.....	1795	2	3380		4p. Victoria....	1495	2	3500	aghmnar
2p. Bus. Coupe...	1165	2	3030	Dghmr	5p. Sedan....	1295	4	2895	deghlmnr	"8-80"				4p. Cpe. Regal...	1625	2	3455	aeghmnr	
5p. Sedan....	1215	2	3150	Dghmnr	5p. Phaeton....	1395	4	2850	aghilmnrw	2p. Coupe.....	1985	2	3410	ag	4p. Vic. Regal...	1625	2	3500	aeghmnr
4p. Coupe....	1245	2	3030	Dghmnr	2-4p. Roadster....	1495	2	3025	aghilmnrw	5p. Sedan....	1985	4	3570	ag	5p. Sed. Regal...	1625	4	3566	aeghmnr
5p. Sedan....	1285	4	3250	Dghmrt	2-4p. Coupe....	1565	2	2975	aghilmnr	"8-88"				5p. Sedan....	1985	4	4000	aeghimprx	
5p. Coupe....	1445	4	3380	Dghmrt	5p. Std. Sedan...	1395	2	3000	aghilmnr	5p. Tourer....	2495	4	3650	cg	5p. Brougham...	1985	4	4040	aeghmnpzx
"Advanced" 121" W.B.					Spt. Sedan....	1395	4	3100		5p. DeL. Sedan...	1795	4	3125	Deghlmnr	5p. Sed. DeL. Sedan...	2250	4	4185	Beghikmnp rtx
4p. Roadster....	1475	2	3400	Dghmnr	5p. De. Sedan....	1795	4	3125	Deghlmnr	"8-91"				7p. DeL. Sedan....	2250	4	4225	Beghikmnp tx	
5p. Touring....	1340	4	3400	Dghmnr	5p. Phaeton....	1695	4	2930	aghilmrwx	7p. Sedan....	2895	4	3880	cg	7p. Limousine....	2450	4	4300	Beghikmnp tx
5p. Sedan....	1425	2	3620	Dghmrt	2-4p. Sp. Roadster	1695	2	2960	aghilmrwx	7p. Tourer....	3285	4	3980	cg	"President 8"				
5p. Sedan....	1495	4	3650	Dghmrt	4p. Coupe....	1725	2	3050	aghilmrnx	5p. Sedan....	2985	4	4000	aeghimprx	5p. Sedan....	1985	4	4000	aeghimprx
127" W.B.					4p. Sedan....	1895	4	3150	aghilmrnx	5p. Sedan....	3285	4	4040	aeghmnpzx	5p. Sedan....	1985	4	4040	aeghmnpzx
7p. Touring....	1440	4	3500	Dghmnr	5p. Landaulet....	1995	4	3250	aghilmrnx	"8-98"				7p. DeL. Sedan....	2250	4	4185	Beghikmnp rtx	
5p. Sp. Touring...	1540	4	3500	Dghmnpzx	128" W.B.					5p. Sedan....	2495	4	3650	cg	7p. Limousine....	2450	4	4300	Beghikmnp tx
4p. Victoria....	1595	2	3640	Dghmrt	128" W.B.					5p. Sedan....	2895	4	3880	cg	"Weyman Cus."				
5p. Sedan....	1775	2	3650	Dghmnr	128" W.B.					5p. Sedan....	3285	4	3980	cg	131" W.B.				
5p. Amb. Sedan...	1925	4	3820	Dghmnpzx	5p. Sedan....	1985	4	3125	B	"New Phan"				2p. Speedster....	3495	2	4478	aegjlmprux	
7p. Sedan....	1990	4	3830	Dghmrtx	128" W.B.					5p. Sedan....	3495	4	4679	aegjlmprux	4p. Speedster....	3495	4	4679	aegjlmprux
7p. Imp. Sedan...	2165	4	3900	Dghmrtx	128" W.B.					5p. Sedan....	3495	4	4769	aegjlmprux	4p. Vic. Coupe...	3495	4	4769	aegjlmprux
OAKLAND "AA-6"					5p. Sedan....	3495	4	3875	Deghlmnrxt	"Star 4"				5p. Sedan....	3570	4	4977	aegjlmprux	
5p. Sp. Phaeton...	\$1095	4	2620	aehjn	2-4p. Roadster....	2245	2	3650	Deghlmnr	5p. Sedan....	3570	4	4920	aegjlmprux	5p. Sedan....	3570	4	4920	aegjlmprux
4p. Sp. Rdstr....	1075	2	2730	aehjn	5p. Sedan....	3570	4	3975	Deghlmnrxt	5p. Sedan....	3695	2	4520	aegjlmprux	5p. Sedan....	3695	2	4520	aegjlmprux
2-4p. Cabriolet...	1155	2	2825	ahn	5p. Sedan....	3645	2	4226	ah	5p. Sedan....	3895	4	5018	aegjlmprux	5p. Sedan....	3895	4	5018	aegjlmprux
5p. 2d. Sedan....	1045	2	2890	ahn	5p. Sedan....	3645	4	3950	Deghlmnrxt	5p. Sedan....	3995	4	5159	aegjlmprux	5p. Sedan....	3995	4	5159	aegjlmprux
3p. Land. Coupe...	1045	2	2805	ahn	5p. Ber. Lim....	2345	4	4100	Deghlmnrxt	"Stearns-Knight F-6-85"				2p. Black Hawk...	4895	2	4478	aegjlmprux	
5p. 4d. Sedan....	1145	4	2980	ahn	5p. Ber. Lim....	2345	4	4100	Deghlmnrxt	5p. Sedan....	4120	2	4493	aegjlmprux	5p. Sedan....	4120	2	4493	aegjlmprux
5p. Land. Sedan...	1265	4	3050	aehnou	"8-69"					5p. Sedan....	4120	2	4509	aegjlmprux	4p. Coupe....	4345	4	4610	aegjlmprux
OLDSMOBILE "F-28"					5p. Sedan....	4120	2	4510		5p. Landau Sed....	4420	4	4777	aegjlmprux	5p. Landau Sed....	4420	4	4777	aegjlmprux
Sp. Roadster....	\$995	....			5p. Sedan....	4420	4	4560		5p. Landau Sed....	4495	4	4778	aegjlmprux	5p. Landau Sed....	4495	4	4778	aegjlmprux
5p. Sp. Touring...	995	....			5p. Sedan....	4495	4	4560		5p. Sedan....	4545	4	4778	aegjlmprux	5p. Landau Sed....	4545	4	4778	aegjlmprux
2p. Coupe....	925	....			5p. Sedan....	4545	4	4560		5p. Sedan....	4745	4	4778	aegjlmprux	5p. Landau Sed....	4745	4	4778	aegjlmprux
5p. Sedan, 2d....	925	2			5p. Sedan....	4545	4	4560		5p. Limousine....	4995	4	4778	aegjlmprux	5p. Landau Lim....	5295	4	4778	aegjlmprux
2-4p. Spt. Coupe...	995	....			5p. Sedan....	4545	4	4560		5p. Landau Lim....	5295	4	4778	aegjlmprux	5p. Landau Lim....	5295	4	4778	aegjlmprux
5p. Sedan, 4d....	1025	4			5p. Sedan....	4545	4	4560		5p. Sedan Lim....	6345	4	4974	aegjlmprux	5p. PW Sedan....	6345	4	4974	aegjlmprux
5p. Landau Sed...	1085	....			5p. Sedan....	4545	4	4560		5p. Sedan Lim....	6345	4	4974	aegjlmprux	5p. Com. T'n Car	6895	4	4974	aegjlmprux
OVERLAND "4" Whippet					5p. Sedan....	4545	4	4560		"Salon Cus."				VELIE "Std. 50"					
5p. Touring....	\$455	4	1985	agr	5p. Sedan....	4545	4	4560		5p. Sedan....	6345	4	4974	aegjlmprux	5p. Touring....	\$995	2	2670	aehmnar
2-4p. Roadster....	525	2	2192	agr	5p. Sedan....	4545	4	4560		5p. Sedan....	6345	4	4974	aegjlmprux	5p. Sedan....	1165	2	2917	aebkmnr
2p. Coupe....	535	2	2060	agr	5p. Sedan....	4545	4	4560		5p. Sedan....	6345	4	4974	aegjlmprux	5p. Sedan....	1165	4	3017	aehkmnr
2-4p. Coupe Cab...	545	2	2122	agr	5p. Sedan....	4545	4	4560		5p. Met. Sedan...	1165	4	3087	aehkmnr	5p. Sedan....	1165	4	3087	aehkmnr
5p. Coach....	535	2	2160	agr	5p. Sedan....	4545	4	4560		5p. Metro Sed...	1195	2	4478	aeghkmnr	5p. Metro Sed...	1195	2	4478	aeghkmnr
5p. Sedan....	585	4	2210	agr	5p. Sedan....	4545	4	4560		5p. Metro Sed...	1265	4	4509	aeghkmnr	5p. Metro Sed...	1265	4	4509	aeghkmnr
PACKARD "526"					5p. Sedan....	4545	4	4560		2p. Coupe....	1265	2	4520	aeghkmnr	2p. Coupe....	1265	2	4520	aeghkmnr
4p. Runabout....	\$2275	2	3620	Deghlmnpzx	5p. Sedan....	4545	4	4560		2p. Cabriolet....	1265	2	4540	aeghkmnr	2p. Cabriolet....	1265	2	4540	aeghkmnr
5p. Phaeton....	2275	4	3665	Deghlmnpzx	5p. Sedan....	4545	4	4560		2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
5p. Sedan....	2285	4	4000	Deghlmnpzx	5p. Sedan....	4545	4	4560		2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
2-4p. Coupe....	2350	4	3950		5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
4p. Conv't Cpe...	2425	4	3875		5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
5p. Phaeton....	2385	4	3745		5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
4p. Runabout....	2385	4	3700		5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
7p. Touring....	2485	4	3865	Deghlmnpzx	5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
4p. Coupe....	2685	2	4000	deghmrt	5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
5p. Club Sedan...	2685	4	4085	Deghlmnpzx	5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
2p. Coupe....	4150	....			5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
2p. Conv't Cpe...	4250	....			5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
4p. Coupe....	4450	4	4635	Djk	5p. Lim. Encel....	4675	4	4805	Dghlrmpr	2p. Coupe....	1265	2	4540	aeghkmnr	2p. Coupe....	1265	2	4540	aeghkmnr
5p. Club Sedan...	4450	4	4710	Deghlmnpzx</															

1961 Chilton Catalog
1961 Chilton Catalog

This list comprises current cars distributed on a national basis only.

Current Passenger List may be found in the Chilton Catalog and Directory.



Once sold they Stay sold . ,

The more than 275,000 buyers of Cadillac and LaSalle cars know through personal experience that the V-type Eight gives them greater satisfaction and more for their money, in finer all-round performance, than any other type of Eight.

Only Cadillac-built cars are powered with the V-type Eight. Consequently when these owners are ready for a new car their choice is naturally confined to either a Cadillac or a LaSalle—

Which is one of the many reasons why the Cadillac-LaSalle franchise is so eagerly sought in all cities, large or small.

CADILLAC MOTOR CAR COMPANY

Division of General Motors

DETROIT, MICHIGAN

OSHAWA, CANADA

Mechanical Specifications of Current Passenger Car Models—Continued

Abbreviations—Names of Mfrs. of Stock Parts																	
Chassis Lubrication																	
Length—Type and Gear Ratio																	
Steering Gear—Make																	
4-Wheel Type and Hand-Lo-Jetion																	
Foot-Type and Gear Ratio																	
Type and Make																	
Universal—Type and Make																	
Clutch—Type and Make																	
Gear Set—Make																	
Rear Spurings—Type and Gear Ratio																	
REAR AXLE																	
Brakes																	
GEAR RATIO																	
STEERING GEAR—MAKE																	
CLUTCH—TYPE AND MAKE																	
GEAR SET—TYPE AND MAKE																	
ELECTRICAL SYSTEM																	
STARTER AND MAKE																	
LIGHTS AND MAKE																	
WHEELS AND MAKE																	
ENGINE																	
MAKE AND MODEL	WHEEL SIZE (inches)	TRUCK TYPE	NUMBER OF CYLIES,	BORE AND STROKE,	COMPRESSION RATIO	CAMSHAFT DRIVE	PISTON MATERIAL	GRANITE-FLYING CYLIES,	GRANITE-FLYING CYLIES,	DEMPELER,	NO. MIN. BEARING,	CRANKSHAFT-FLYING CYLIES,	ROD-FLAT,	N.A.C.C. H.P.	RAILS AND SPEED	LIVE ARRANGEMENT	
Kiesel	8-30	125'-132'	31x6.20	Own.	80.8-274-434	26.5	296.0	15 Ch.	Als.	70-2900	5.15	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Col.	
Kiesel	8-30	131'-139'	306.75	Own.	80-3400	33.2	303.0	3.8 Ch.	N.L.	115-3400	5.15	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Col.	
La Salle	8-30	125'-134'	326.00	Own.	8-3-8441	31.2	300.8	4.8 Ch.	N.L.	80-3000	4.8	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Col.	
Lincoln	8-30	136	326.75	Own.	8-3-845	30.5	303.2	3.8 Ch.	Al.	70-3000	5.1	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Locomobile	8-30	122	31x6.00	Con.	Spec. 8-2-84%	26	247.1	2.7 Ch.	N.L.	70-3000	5.1	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Locomobile	8-30	130	326.00	Lye	4-H 8-3-441	33.8	299.7	3.8 Ch.	Al.	105-2100	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Locomobile	8-30	142	326.75	Own.	48.6-4-25	48.6	57.0	2.7 Ch.	N.L.	105-2100	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Locomobile	8-30	138	33x6.75	Own.	48.6-4-25	55.7	60.2	3.8 Ch.	N.L.	90-2800	4.25	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Mars	6-50	114	295.50	Own.	8-2-944	24.2	201.2	2.1 Ch.	N.L.	70-2900	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Mars	6-50	120	31x6.75	Own.	8-2-944	27.6	217.7	3.8 Ch.	N.L.	96-3400	5.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
McFarlan	6-50	136	32x6.00	Lye	E-75	55.7	59.0	3.8 Ch.	N.L.	75-2800	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
McFarlan	6-50	141	33x6.75	Own.	75-2800	4.5	72.0	3000.4	5.5 Ch.	Al.	70-3000	5.1	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.
Moon	6-50	113	30x6.25	Con.	TV 75-2800	4.6	57.7	2.7 Ch.	N.L.	120-2400	4.6	PG. F. N.	P.B&B.	W.G.	m-Qui.	1/2 Own.	
Moon	6-50	117	30x6.25	Con.	TV 75-2800	4.6	57.7	2.7 Ch.	N.L.	50-2600	4.65	PG. F. N.	P.B&B.	W.G.	m-Qui.	1/2 Own.	
Oldsmobile	6-50	110	29x.75	Con.	26.6-2-944	19.8	185.1	4.7 Ch.	N.L.	47-2600	4.78	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Oldsmobile	6-50	120	29x.75	Con.	26.6-2-944	27.3	215.0	4.94	Ch.	Als.	65-2800	4.25	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.
Pierce-Arrow	6-50	125	31x6.20	Con.	155.8-3-844	28.8	280.1	5.0 Ch.	N.L.	86-2800	5.0	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pierce-Arrow	6-50	125	32x6.00	Own.	8-3-844	28.4	289.1	4.5 Ch.	N.L.	45-2600	4.5	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pontiac	5-53	133	32x6.75	Own.	8-3-844	28.4	289.1	4.5 Ch.	N.L.	86-2800	4.5	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pontiac	5-53	143	32x6.75	Own.	8-3-844	28.4	289.1	4.5 Ch.	N.L.	45-2600	4.5	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pearless	6-50	116	29x.75	Con.	106-3-444	25.3	224.1	4.6 Ch.	N.L.	52-2600	4.69	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pearless	6-50	116	31x6.25	Con.	80.6-3-444	25.3	224.1	4.6 Ch.	N.L.	60-2800	4.8	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pierce-Arrow	6-50	138	33x6.75	Own.	66.3-3-444	33.8	332.1	5.0 Ch.	N.L.	55-2700	5.0	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pierce-Arrow	6-50	138	33x6.75	Own.	90.6-3-444	34.6	334.1	5.0 Ch.	N.L.	32-2800	4.35	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pontiac	5-53	130	32x6.75	Own.	66.3-3-444	30.4	291.1	4.5 Ch.	N.L.	82-3200	4.5	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Pontiac	5-53	130	32x6.75	Own.	81.3-3-444	30.4	291.1	4.5 Ch.	N.L.	82-3200	4.5	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Wolverine	6-50	110	29x.75	Own.	6.28-8-334	25.3	187.1	4.9 Ch.	N.L.	45-2600	4.9	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Reo	6-50	115	28x.75	Own.	1.5E 6-3-444	25.2	249.1	4.9 Ch.	N.L.	73-2800	4.8	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Reo	6-50	121	32x6.00	Con.	A-6-3-444	25.2	249.1	4.9 Ch.	N.L.	63-2600	4.69	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Rosmer	6-50	120	32x6.00	Lye.	GT 8-2-844	24.2	226.1	4.94 Ch.	N.L.	80-2800	4.4	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Rosmer	6-50	126	32x6.75	Lye.	4H 8-3-441	33.8	329.1	5.0 Ch.	N.L.	84-2800	5.00	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Rosmer	6-50	126	32x6.75	Lye.	4H 8-3-441	33.8	329.1	5.0 Ch.	N.L.	84-2800	5.00	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Rosmer	6-50	136	33x6.75	Own.	40-50	48.6	454.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.	
Rosmer	6-50	136	33x6.75	Own.	40-65	48.6-4-554	43.3	468.1	4.7 Ch.	N.L.	115-3000	5.0	PG. F. N.	P.B&B.	W.G.	m-Mee.	1/2 Own.
Star	5-53	107	28x.75	Con.	V-5-4-3-444	18.2	152.1	4.2 Ch.	N.L.	36-2400	4.2	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Stearns-Knight	F-85	127-144	32x6.75	Own.	F-85-6-3-25	29.4	288.1	4.9 Ch.	N.L.	82-2800	5.0	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Stearns-Knight	F-85	127-145	32x6.75	Own.	F-85-6-3-25	39.2	303.1	5.0 Ch.	N.L.	112-2800	5.0	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Studebaker	H & J	127-145	30x5.50	Own.	GE 1-2800	4.5	242.1	4.5 Ch.	N.L.	65-2800	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Studebaker	H & J	127-145	30x5.50	Own.	GE 1-2800	4.5	242.1	4.5 Ch.	N.L.	65-2800	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Studebaker	Commander	113	30x6.75	Own.	30x5.5	36.0	354.1	4.5 Ch.	N.L.	70-3000	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Studebaker	Commander	113	30x6.75	Own.	30x5.5	36.0	354.1	4.5 Ch.	N.L.	70-3000	4.5	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Studebaker	Pass.	131	31x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Stutz	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000	4.79	PG. F. N.	P.B&B.	W.G.	m-Spi.	1/2 Own.	
Willis-Knight	S-88	125	32x6.75	Own.	32x6.75	36.4	313.1	4.7 Ch.	N.L.	100-3000							

KEY OF SYMBOLS

- Others Used
- At extra cost
- On Royal models on
- ½ -Semi-floating
- Three-quarter float
- Aluminum with str
- Aluminum with str
- Semi-steel
- 3-F—Internal front and
external rear

A New Line of Motor Cars



Joseph B. Graham
Robert B. Graham
Ray A. Graham

Motor Cars on which we proudly place our name

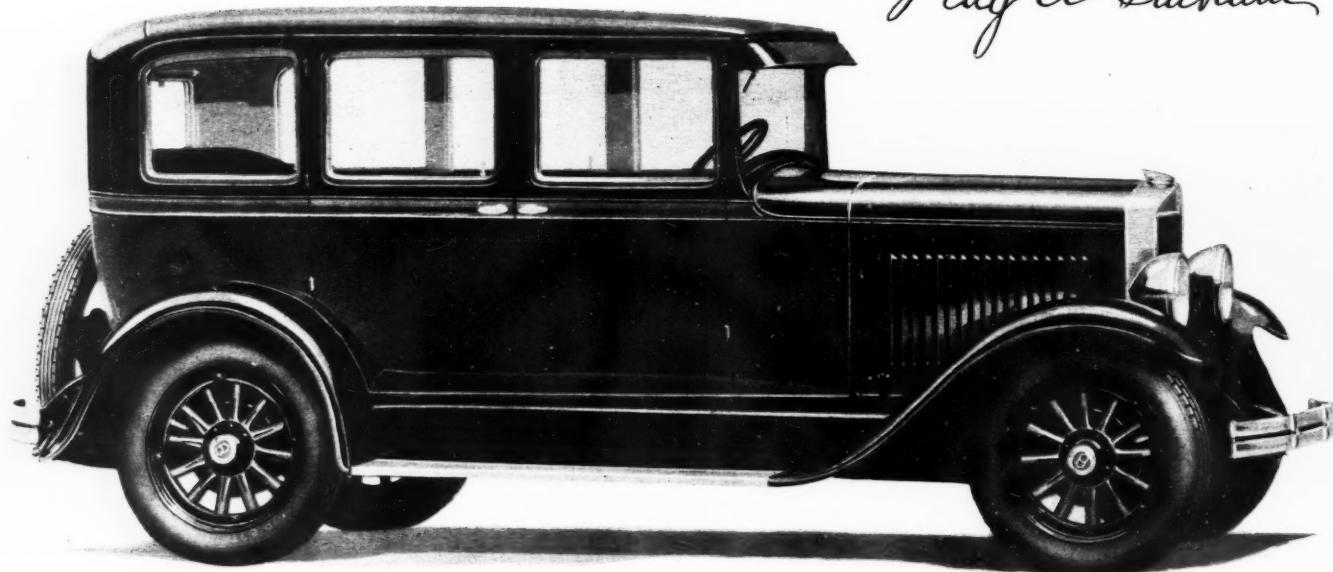
To build these new Graham-Paige motor cars, we returned to the automotive industry after having severed all previous connections with that industry.

After a year of investigation, we acquired strategically located properties, offering excellent opportunities for modern manufacturing methods. Material additions were made; a large body plant purchased and equipped, special machinery installed.

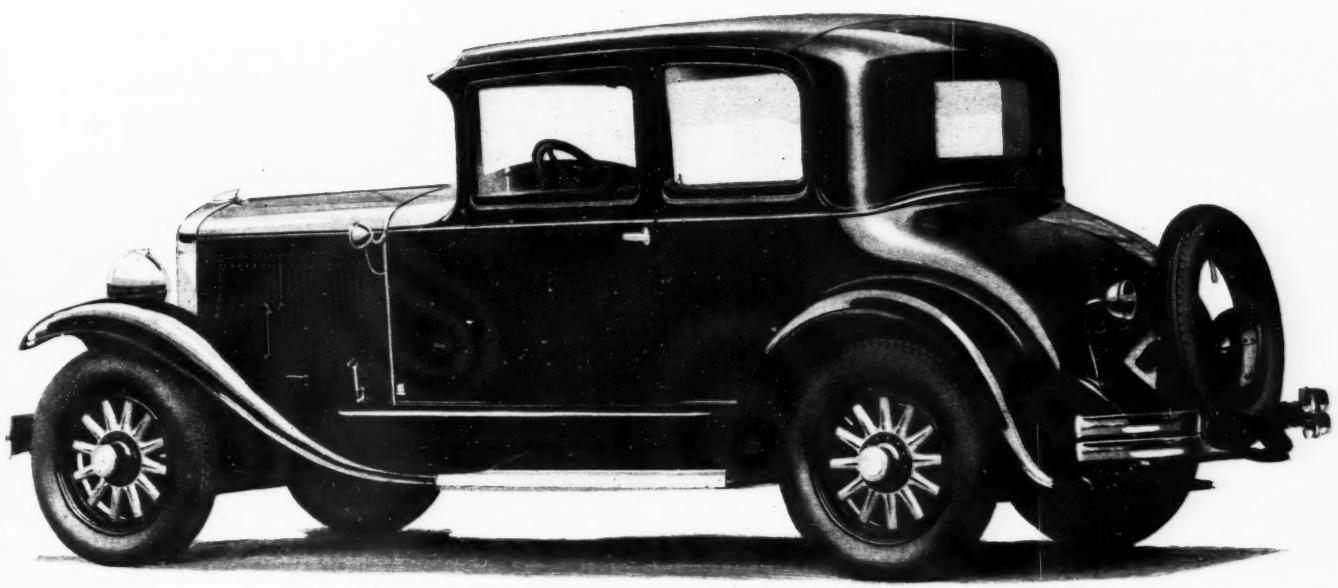
The new cars reflect our ideas of distinguished appearance, of thoroughgoing comfort, of dependable construction, of full satisfactory performance, and substantial worth.

They have been produced in a wide variety of models and body types. The price range, too, is exceptionally wide, beginning at \$860 f. o. b. Detroit.

*Joseph B. Graham
Robert C. Graham
Ray A. Graham*

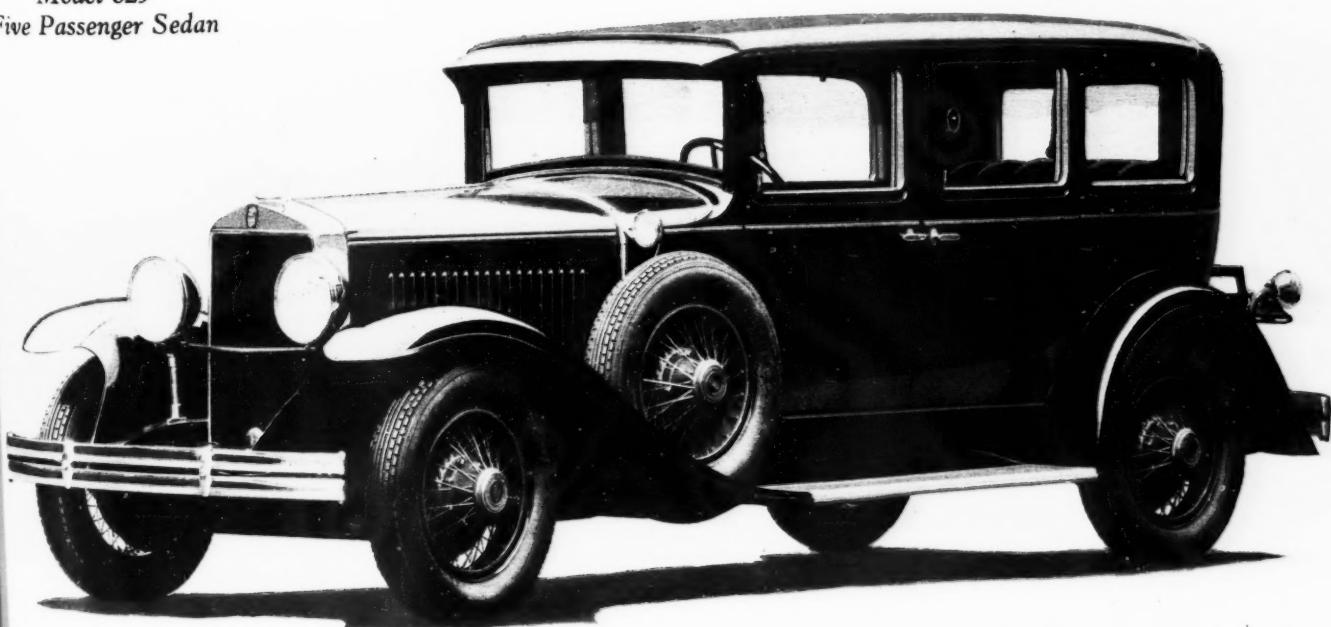


Model 610
Five Passenger Sedan



Model 619
Four Passenger Coupe

Model 629
Five Passenger Sedan



“...we shall strive to make the Graham-Paige dealership a profitable enterprise for a substantial business man in every community”.

(From “A Message from the three Graham brothers”, published June 12, 1927)



In territories where the completely new line of Graham-Paige sixes and eights is not now adequately represented, there is an opportunity for a business man who possesses the three fundamental qualifications — Character, Capability, and Capital — to obtain this franchise.

Wire, phone or write.

GRAHAM-PAIGE MOTORS CORPORATION
Detroit, Michigan

GRAHAM-PAIGE

BANG!

When two cars bump at the crossing, with smashing glass, bent fenders, etc., the crowd that immediately collects represents *no particular group of people*. It includes bankers, brokers, grocer boys, bootleggers, candle stick makers, *et al.*

But with your dealer message appearing in the trade's principal newspaper (edited for 25,000 trade units, comprising the industry's real merchandising effectives), the circulation is *really effective*—with waste comparable to that fractional percentage of impurity that the makers of Ivory soap claim for their product.

Have you noted the recent changes in MOTOR AGE, which are giving it an odds-on advantage in the automotive news field? MOTOR AGE is getting a lot of favorable reaction from its subscribers—reaction that spells increasing value to those manufacturers who use its advertising pages.

[MOTOR AGE circulation is paid. Except for AUTOMOBILE TRADE JOURNAL, which has a fractional advantage, the percentage of voluntary subscription renewal is the highest of any automotive publication. A charter member of the A.B.C. An advertising vehicle that will carry your dealer message the whole distance. **]**

If you are interested in a market analysis to determine, in a practical manner, just how your product can best be merchandised via automotive trade channels, we will be glad to place our unusual research facilities at your service.

MOTOR AGE

A Chilton Class Journal Publication

CHESTNUT and 56th STREETS, PHILADELPHIA

Quality is a great National Publicity Campaign

A Newspaper Advertisement



*New . Rich . Individual
and how it does perform!*

SIT at the wheel of this new Six-91—point its nose towards any hill—and let 'er go. Take it through the traffic throng—over the boulevards—along rough, unfrequented roads.

After all, the real test is what car will do. And you'll be enthusiastic over the performance of this new, advanced Six-91. It's built to serve so well that

when the day comes for you to buy another car, the answer to will unquestionably be Peerless. You'll find in wonderful satisfaction in its surging, buoyant power—its soothing silence—its handling ease. For it's as colorful in action as it is in rich, distinctive beauty.

Drive this Six-91 and you'll never content yourself with anything less.

PEERLESS MOTOR CAR CORPORATION • Cleveland, Ohio
Manufacturers of the famous 900 V-type Eight 69 (\$2245 to \$2645), the Six-91 (\$1895 and \$1995), the Six-80 (\$1295 to \$1395), the Six-60 (\$1195 to \$1295).
(All prices f. o. b. factory)

[DEALER'S NAME]
PEERLESS
PEERLESS . HAS . ALWAYS . BEEN . A . GOOD . CAR

*Manufacturers of the famous 900 V-type Eight 69 (\$2245 to \$2645), the Six-91 (\$1895 and \$1995), the Six-80 (\$1295 to \$1395), the Six-60 (\$1195 to \$1295).
(All prices f. o. b. factory)*

*We help our dealers
and distributors
sell cars*

Consistent national advertising in the country's greatest periodicals . . . continuous advertising in the local newspapers over the name of the distributor and his dealers . . .

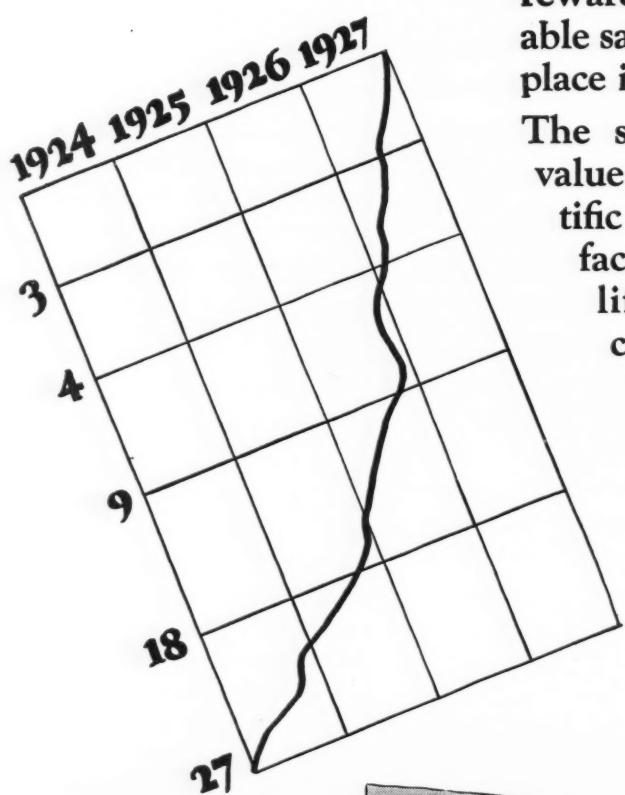
This is the great sales-creating force that is continually working for the man who handles Peerless cars . . . keeping Peerless quality alive in the minds of his prospects . . . adding its stimulus to the already intense interest in the four superb Peerless models now on the market.

Backed by such advertising . . . by cars that fulfill every expectation . . . and by one of the soundest manufacturing organizations in the automobile business . . . the man who holds the Peerless franchise has a broad, straight road to success. Send for details of the Peerless franchise.

PEERLESS MOTOR
CAR CORPORATION
Cleveland, Ohio

CHRYSLER

The Desires of the PUBLIC



Chrysler from the outset has expertly sensed and served the public's desire in motor cars. The public in turn has rewarded Chrysler with the most remarkable sales rise in the industry—27th to 3rd place in 42 short months.

The superior performance, quality and value Chrysler gives—the genius of scientific engineering and precision manufacturing which guarantees the long life and dependability of Chrysler cars—appeal irresistibly to the public.

You will find it a shorter and surer way to profits to sell the product of a maker who knows what the public wants and gives it—a maker who has won popular confidence more rapidly than any other—Chrysler.



SATISFIES

The Needs of the

DEALER

The dealer needs the *four-profit* possibilities of cars built to a single high standard of quality in the *four important price fields*—to reach every possible buyer in his community rather than to be limited by a single model. Chrysler's four lines—"52," "62," "72" and Imperial "80"—give him this advantage.

The dealer needs merchandise priced to insure him a competitive superiority over any other make. Chrysler gives him this advantage.

The dealer in the smaller communities needs the overwhelming advantage of being able to sign for one Chrysler line—the immensely popular "52"—and yet without other commitments to draw cars of higher price—the "62," "72" or Imperial "80"—as he may need them, from his distributor. Chrysler's special "52" agreement gives him this advantage.

The dealer needs competitive discounts

and fair policies under which to work. Chrysler sales executives have come up from the selling ranks as dealers and field men. They know what he should have. The Chrysler franchise gives the dealer this advantage.

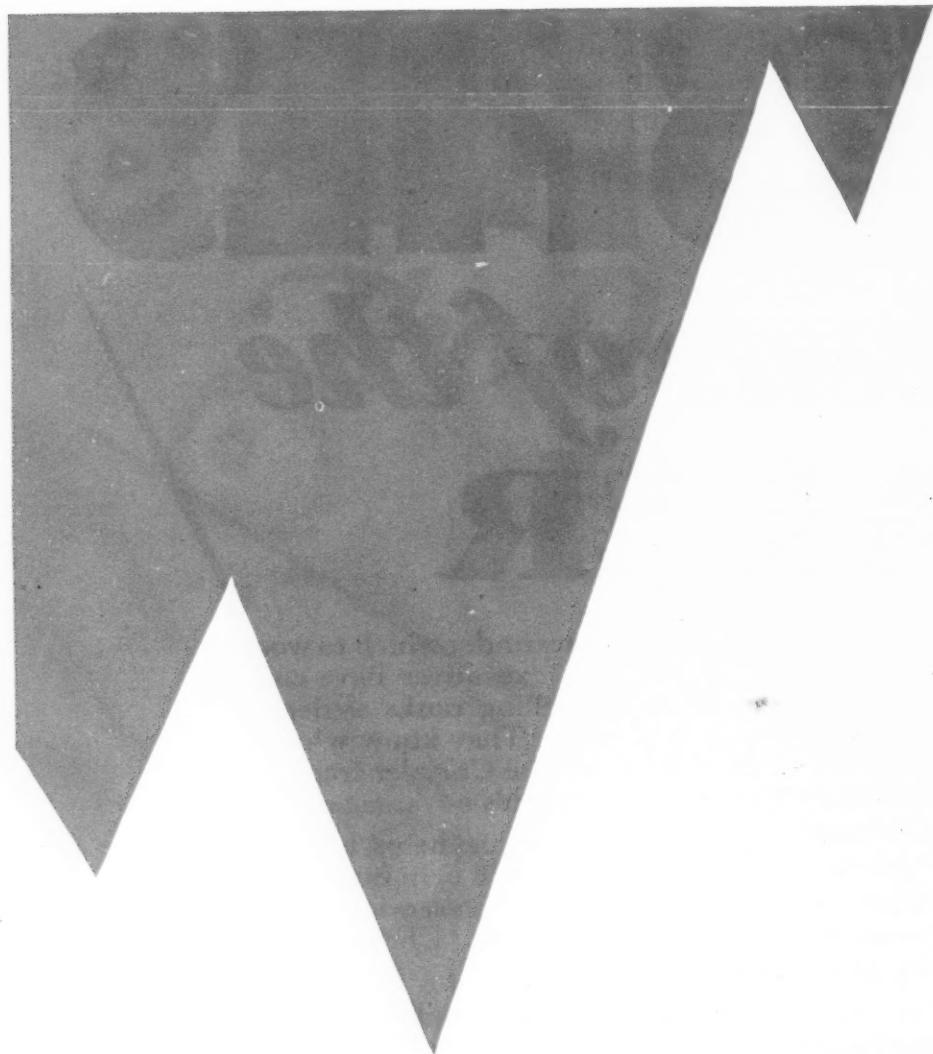
The dealer needs sales helps; he needs information that will help him organize his business and his service for permanency and profit. Chrysler gives him this advantage.

In short, Chrysler supplies what the public and the dealers both must have so that the public will be eager customers and the dealers will profit thereby.

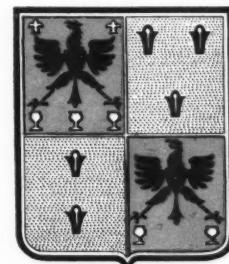
You, as a live, forward-looking business man, owe it to yourself to seize this opportunity to found a substantial, profitable automobile business. If you can, you should get the Chrysler franchise. Get in touch with us. We will hold your inquiry in strictest confidence.

CHRYSLER SALES CORPORATION, DETROIT, MICHIGAN
CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONTARIO





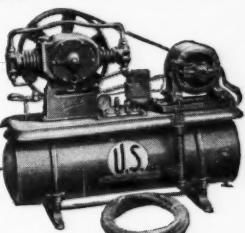
DE SOTO



Are You Ready for 1928 Service?

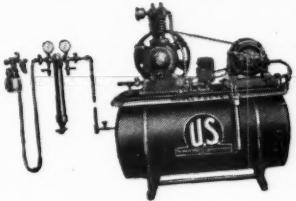
Air Compressors for Shop and Service Stations

Air compressors that will simplify many shop operations and run numerous air appliances besides inflating tires, are included in the U. S. Air Compressor line. There are a variety of models in different sizes besides the one illustrated here.



Standard De Luxe Air Compressor

Paint Spray Equipment For All Classes of Work

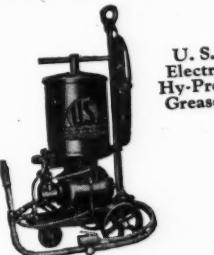


Model PSE-6 Paint Spray Unit

The U. S. Air Compressor Company has developed paint spray units to meet requirements of shops of different sizes, specializing in different classes of work. The paint spray unit illustrated here, as well as all others made by U. S. have special time and material saving advantages not found in other equipment.

One Man Electric Greaser

The U. S. Electro Hy-Press Greaser has a decided advantage over all other types of high pressure grease outfit in speed, ease of operation and handling. It is electrically operated from a light socket and controlled by switch near the end of grease hose which permits operator to use one hand for customary bar.



High Pressure Washers of Various Capacities



Model AW-2, two-gun Car Washer

U. S. High Pressure Hydraulic Car Washers are made in one, two and four gun sizes. The U. S. car washer like other U. S. Equipment, has been endorsed by leading motor car manufacturers in shop manuals and accepted by the motoring public. All models are self-oiling and have exclusive U. S. Patented breaker valve which prevents back pressure from injuring plumbing fixtures.

THE UNITED STATES AIR COMPRESSOR COMPANY

General Office and Factory: 5304 Harvard Avenue, Cleveland, Ohio

Export Dep't: 30 Water St., New York City

Western Office and Warehouse: 7 Front St., San Francisco, Cal.

Cable Address: WIDBLOCO, all codes

Please Check

- AIR COMPRESSORS
- PAINT SPRAY
- CAR WASH EQUIPMENT



Print Name

NAME

ADDRESS

CITY

--

Get These Bulletins on U. S. Equipment

COMPLETE details and description of all U. S. Air equipment are contained in a series of new bulletins just issued. These bulletins give air consumption of various appliances as well as technical descriptions of U. S. Equipment.

Air Compressors

Bulletin No. 1 describes the numerous profitable operations, which may be performed with compressed air and gives the cubic foot per minute requirements for various profitable air operations. This information is helpful in determining the type of air compressor needed for any requirements.

Bulletin No. 2 and No. 3 describe the several two-stage De Luxe models ranging in capacity from $3\frac{1}{2}$ to $4\frac{1}{2}$ cu. ft. of air per minute. Bulletin No. 4 gives details of the two-stage Model LB-4 and single-stage Model LB-6, widely known as Super-Service Station Units.

Bulletin No. 5 describes the large water-cooled Model LB-5 with a capacity of 20 cu. ft. of air per minute. Other air compressors of smaller capacities in both stationary and portable models are described in Bulletins No. 6, 7, 8 and 9.

Paint Spray Units

Helpful information about the operation and management of an auto paint shop with useful data to guide one in the selection of paint shop equipment, is contained in Bulletin No. 12. Bulletins No. 13, 14 and 15 give detailed descriptions of complete range of one and two-gun paint spray units in both stationary and portable types.

Electric Greaser

Bulletin No. 20 is devoted to a description, and specifications of the new U.S. Electro-Hy-Press Greaser. Its mechanical features are described in detail.

U. S. Car Washers

Successful methods of operating an auto laundry are described in Bulletin No. 16. This gives a typical wash rack layout and tells how to get and hold customers for a car washing business. Bulletins No. 17 and 18 describe the several models of U. S. Car Washers.

U. S. Air Accessories

The U. S. Air tower, numerous air appliances, including the U. S. Auto Cleaner and Spring Sprayer and Engine Cleaner, are pictured and described in Bulletins No. 10, 11 and 19.

Glory Enough for... Carter

Chevrolet was a world-beater in 1927.

Chevrolet is keeping it up in 1928.

Since August 1925, every Chevrolet has been Carter-carbureted.

Proud to be identified with the glorious record of Chevrolet, Carter is alive to its every responsibility under Chevrolet's pledge to give America a quality car of outstanding performance and dependability.

Carter Carburetor Corp'n, St. Louis

CARBURETER

Self-Service COIN SLOT PUMP

Sells Gas 24 Hours a day-without attendant



*Earn more profit from your gasoline sales.
Creates good will—saves the cost of attendant.*

"SELF-SERVICE" Pump fully perfected and patented offers gas stations, garages, retail stores and isolated localities constant, automatic gasoline service—24 hours a day. No attendant needed—no complicated computing devices—no interruption of clerks or workmen—no waste—no delays.

"SELF-SERVICE" Pump answers the "after hour" problem by its entirely automatic, accurate dispensing of gasoline. This gas pump earns more profit by eliminating overhead. Pays for itself quickly in "after hour" sales alone.

"Self-Service" PUMP

EASILY OPERATED

The car owner merely places hose, inserts 50 cent piece in slot and cranks. "SELF-SERVICE" Pump accurately measures the proper amount of gasoline at prevailing price. Can be adjusted to dispense any amount of gasoline (at 50c). Easily distinguished by unique striping of orange and black.

"SELF-SERVICE" Pumps Promote Cash Sales

Operators of gas stations, stores or garages are invited to write for literature and facts.

Territories not now covered are open for agencies—correspondence solicited.

LIQUID SERVICE CO. of AMERICA
Lehmann Bldg., Peoria, Ill.

(Fill out or just pin to your letterhead.)
Gentlemen: Please tell us more about your
automatic gasoline "SELF-SERVICE" Coin Slot
Pumps.
Name _____
Address _____
City _____

FOLLETT'S

NEW
MODEL

TIME STAMP

accounts for every labor minute



Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic — except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N.J.
"Established Since 1904"

HUTTO
MODEL "A" TWIN THREE
CYLINDER GRINDER

HUTTO ENGINEERING CO., INC.
519 Lycaste Ave. ~ Detroit, Mich.

\$33

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write for
your copy

The Book
"AIR PROFITS"
Shows how to get
more work out of
an air compressor.
How to use com-
pressed air for
many pay jobs.

BRUNNER MFG. CO.
UTICA NEW YORK
BRUNNER
AIR COMPRESSORS

PROTEXALL
ONE PIECE SUITS



Building Good Will!

More than just overalls, Protexalls are real advertisements for your business. They build good will. Customers are attracted to your shop by clean, bright service men dressed in spic and span Protexalls. With your name or trade mark on the back of each suit, you are bound to make a strong impression.

Do Protexalls wear well? They're as tough as anything you ever saw. The exceptionally sturdy material combined with the special triple-stitching makes a suit that men and laundries simply can't wear out.

Ask your jobber's salesman.

THE PROTEXALL COMPANY

100 N. Main St., Abingdon, Ill.

clean
with

SPEED up car washing. Clean dirty, oily floors with a minimum of effort. Cut heavy mud and grease from repair parts without hard labor. Oakite materials take every cleaning job "in high." Save time—boost efficiency. Write for booklet containing details.

Oakite is manufactured only by
OAKITE PRODUCTS, INC.
18E Thames Street New York, N. Y.

OAKITE

Industrial Cleaning Materials and Methods

KELLOGG
COMPRESSORS

Pump More Air Per
Horsepower

KELLOGG MFG. CO.
200 Humboldt Street Rochester, N. Y.



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Damageloss proof against repeated boilings and freezings. Built to last the full life of the car. Complete radiators for Fords, Chevrolets, Dodges and Marwells. Cores for all cars and TRUCKS. If not at your jobber's, write direct.

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Hydraulic Double Acting
SHOCK ABSORBERS

Write
Houde Engineering Corp.
539 E. Delavan Ave. Buffalo, N. Y.



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Side-Plate
Trunk
Carriers
Most efficient
for all Cars

The Bellevue Mfg. Co.



Bellevue, Ohio

Weidenhoff
Shop
Equipment
for Battery and
Electrical Service
4358 Roosevelt Road Chicago, Illinois

To locate business opportunities
To sell, rent, exchange or buy
To find men or employment

THE CLASSIFIED DEPARTMENT
WILL HELP YOU

CLASSIFIED

SELL SPONGES. PROTECTED TERRITORY. BY PIECE OR POUND. BUSINESS GOOD NOW. UNITED STATES SPONGE COMPANY. TARPON SPRINGS, FLA.

Put This Display Card
On Your Counter!



Then watch them move. Quick sales that mean quick profits. Small investments with practically no sales effort. They are 45¢ a pair. Red for rear plates—green for front. Six pairs of each color on display card. Start profit your way NOW. Liberal discount. Write for sample.

Protex-A-Motor Mfg. Co. Pittston, Pa.

PROTEX-A-CAR
LICENSE FASTENERS



The
SUPERIOR REBOUND CONTROL
adds riding comfort to the car and greatly
prolongs its life.
See our Full Page Advertisement in the
February 16th Issue.

SUPERIOR REBOUND CONTROL, Inc.
2905 60th Street Kenosha, Wis.

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—is the time to read next week's issue of MOTOR AGE, as you are reading this week's issue this week

MOTOR AGE
Chestnut and 56th Sts. Phila., Pa.

New Lower Prices!

Rewinding Chevrolet armatures, \$2.00. No charge for new commutators. Rewinding or exchanging any two unit type of automobile generator or starter armature, \$2.50. Any type of Ford armature \$1.50. Special prices on Ford armatures in quantities. H. M. Fredericks Co., Lock Haven, Pa.

FREDERICKS
Lyknu Rewinds

SWAP a postage stamp for thousands of dollars worth of real facts on Car Washing. Send for your free copy of the hand book.

MANLEY MFG. CO.
York, Pa. U. S. A.

**R.I.V. Means Quality
in Every Language**



250 West 57th Street

New York City

FOR SALE: Garage and filling station—a real buy for some one. Write P. C. Krause, Reynolds, Nebr.

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The Amber Eye

A SAFETY REFLECTOR that SEES BEHIND YOU



For passenger cars — trucks — busses. A sure protection if tail light fails. Makes night driving safer, prevents accidents. The "AMBER EYE" is visible 1,000 feet away.

Strongly constructed with special glass and mirror reflector. Will not break under vibration or ordinary use. Penetrates fog much better than red or green.

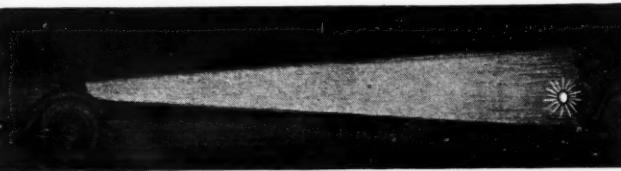
The "AMBER EYE" is a real addition and safety precaution for every car, the last word in new devices. Endorsed by many officials.

Get your stock and sales display in **NOW**.

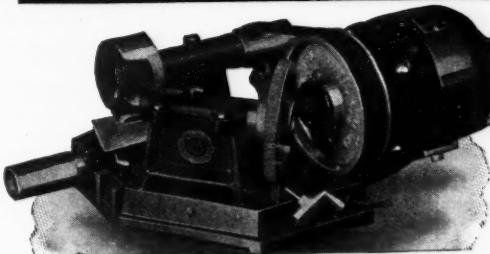
Order through your jobber or write us for test sample on memo, giving your jobber's name.

Manufactured by
HUNT & MOORE, INC.
New Haven, Conn.

Sales Dept.
THE ZINKE COMPANY
1323 Michigan Blvd., Chicago



Pay for this Needed Equipment as you Use it



The Crowe CUPPED WHEEL VALVE REFAKER

No burdensome investment! Easy terms if you want them! The Crowe reclaims valves *perfectly* in 30 seconds. The machine is a time-saver—saves money and time—and pays for itself with a few weeks' work. Low cost, \$87.50. Guaranteed!

Find out about saving time and making money with this new, wonderful refacer. Mail the coupon today.

yes

LISLE MANUFACTURING CO.

819 East Main Street, Clarinda, Iowa.

Without obligation, send me more information about the Crowe Cupped Wheel Valve Refacer.

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Address _____

City _____

State _____

The Lisle Manufacturing Co. also manufactures the new Lisle Re-liner (worn brake lining remover, lining cutter, reliner and tire chain mender—all in one). Slickest tool you ever saw.

Confidence and Respect

Above and beyond all other considerations is the fact that the combined trade circulations of *Automobile Trade Journal* and *Motor Age*, approximately 75,000 paid, reach and cover in excess of 85% of the automotive dealer purchasing power in the United States.*

These two well-edited publications are not only subscribed for and paid for, but command the confidence and respect of the consequential components of our vast net work of automotive dealers from the Atlantic to the Pacific, and from Canada to Mexico.

Therefore if you want new retail outlets, and if you wish to keep present retailers favorably impressed concerning the profits advantage of your product, an adequate use of *Automobile Trade Journal* and *Motor Age* will prove most effective—and pleasingly low in cost.

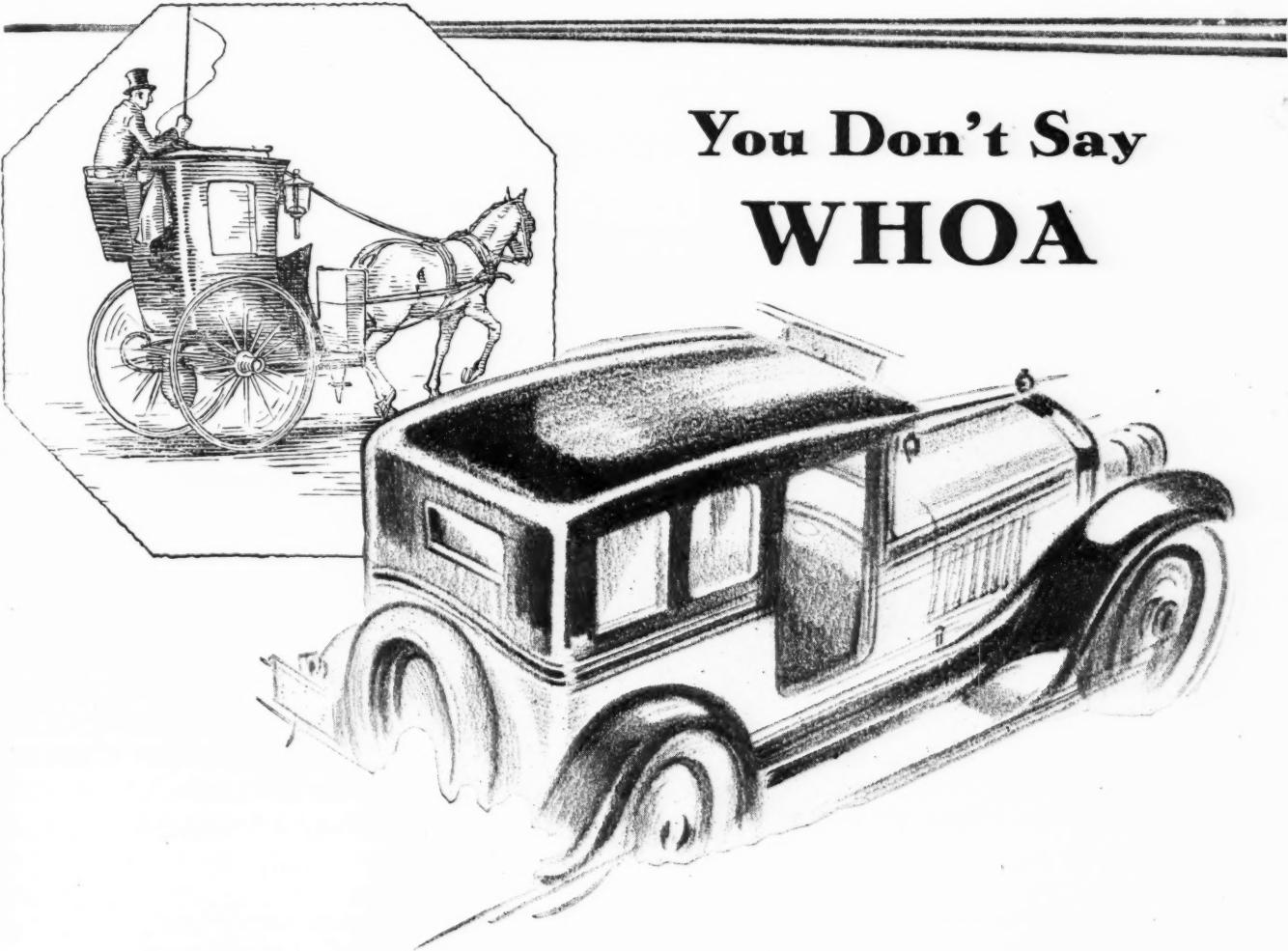
Chilton Class Journal Company PHILADELPHIA

Publishers of Automotive Business Papers

**AUTOMOTIVE INDUSTRIES
AUTOMOBILE TRADE JOURNAL
MOTOR AGE
AUTOMOTIVE INDUSTRIAL RED BOOK**

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CHILTON CATALOG & DIRECTORY
COMMERCIAL CAR JOURNAL
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*This fact is proved. A copy of the proof will be sent if you request it.



You Don't Say
WHOA

There was a time when a pull on the reins meant a safe stop.
Now you need powerful, reliable brakes, such as you get only with

GRAFIELD BRAKE LINING

NEW AND DIFFERENT
MATERIALS AND CONSTRUCTION

Holds Wet or Dry

RELINE BRAKES OFTEN



Send in this coupon for complete information

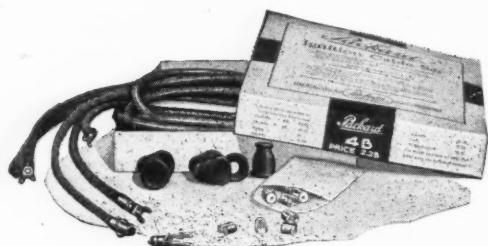
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52 COURTLAND ST., PATERSON, N. J.

PACKARD PIONEERING New Merchandising Methods

FOR SMALLER STOCKS—FASTER TURNOVER
—EASIER HANDLING—AND MORE PROFITS



Ignition Cable Sets

A PACKARD idea, backed by national advertising—full pages and color spreads in The Saturday Evening Post. Nine Packard Ignition Cable Sets give you a stock to serve all makes of cars.

Made with Packard Lac-kard Cable which resists the attacks of cable enemies under the hood.

Complete with terminals and rubber protectors for distributor.

Can be installed in a few minutes with no other tools than a pocket knife.

A neat attractive shelf package with a chart on the bottom of each carton showing the proper set for every car.

Supported by the very latest ideas in attractive sales helps to make your customers reach for their money.

Packard Sets lead the way to rewiring profits.

Packard Group System Replacement Battery Cable

FORTY-TWO cables take the place of two hundred and twenty-five.

All cables No. 1 gauge—26% greater current carrying capacity than No. 2 which is commonly used for replacement. All motor car manufacturers use No. 1 gauge or larger.

A wider range of service with a smaller stock. Faster turnover means less investment and more profit.

Write for complete information.



The Packard Electric



Company, Warren, Ohio.

FOUNDED

IN 1890

